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THE UNIVERSITY OF ALBERTA

ADMINISTRATIVE COMMUNICATION

AND THE

ORGANIZATIONAL STRUCTURE OF THE SCHOOL

by



EARL ARTHUR MANSFIELD

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Administrative Communication and the Organizational Structure of the School" submitted by Earl Arthur Mansfield in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

The central problem of this study was an investigation of the relationships between the degree of bureaucratization of the organizational structure of the school and the extent of the administrative communication, concerning this matter, which occurred within these schools.

In addition, investigations were made of the following relationships: between the extent to which principals and teachers desired a bureaucratic organizational structure and the extent of administrative communication, concerning this matter, which occurred in the schools; between the extent to which principals and teachers desired a bureaucratic organizational structure and the degree of bureaucratization observed in the school; between the extent to which principals and teachers desired a bureaucratic organizational structure and their degree of opinion congruency on this matter; between this degree of congruency between principals and teachers on the matter of organizational structure and, respectively, the extent of administrative communication and the degree of bureaucratization.

Finally, an investigation was made of the relationships between the principal's degree of dogmatism and, respectively, the observed degree of bureaucratization and the extent of administrative communication concerning organizational structure.

The study used a sample of forty-two elementary schools, fourteen from each of three urban school systems. Each of these systems was from a different Western Canadian province. A total of 588 teachers, or fourteen from each school, were involved in the study in addition to the principal of each school.

The instrument developed to measure the degree of bureaucratization observed in the schools was the Organizational Structure Questionnaire. The Principal's Organizational Structure Opinion Scale and the Staff Organizational Structure Opinion Scale were used to obtain, respectively, the extent to which the principal considered a bureaucratic organizational structure to be desirable and the extent to which the staff considered a bureaucratic organizational structure to be desirable. From these, in addition, were derived the extent of administrative communication from the principal to the staff concerning the desirability of a bureaucratic organizational structure (the Principal's Communication Rating) and the extent of agreement between principal and staff on this matter.

In this study the Dogmatism Scale was called the Principal's General Opinion Scale and the resulting score was referred to as the Principal's Dogmatism Rating.

Highly significant differences were found between schools in the extent to which the principals had commu-

nicated to their staffs their opinions concerning the desirability of a bureaucratic organizational structure. However, no significant differences were found among the three urban school systems with respect to this same variable.

No significant relationship was found between the Principal's Communication Rating and: the degree of bureaucratization observed in the schools; the principal's degree of dogmatism ; the degree to which the staffs considered a bureaucratic organizational structure to be desirable for their schools.

A significant direct relationship was found between the Principal's Communication Rating and the degree to which the principals considered a bureaucratic organizational structure to be desirable for their schools.

Significant direct relationships were found between the respective principal and staff attitudes toward the desirability of a bureaucratic organizational structure and: the extent of opinion congruence between the principal and staff on this matter; the degree of bureaucratization observed in the schools.

Highly significant differences were found between schools in the observed degree of bureaucratization. In addition, highly significant differences were found among the three urban school systems with respect to the observed degree of bureaucratization.

The principal's degree of dogmatism did not correlate significantly with any of the scores, characteristics or other variables proceeding from the research data.

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An obligation to the anonymity of the three school systems in the study precludes the possibility of mentioning by name those key administrators in each system whose co-operation was essential to the professional participation of the teachers and principals concerned.

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CHAPTER I

THE PROBLEM

I. INTRODUCTION

It has been extensively stated and assumed in the literature pertaining to organization theory that a very close relationship exists between the organizational structure of a social institution and the administrative communication which occurs therein. However, despite the wide acceptance of the existence of this relationship very little empirical evidence exists to support it.

In this study an attempt was made to derive and analyze empirical evidence relevant to the nature and extent of the organizational structure-communication relationship present within a particular social institution, namely, the school.

More specifically this study was limited to an analysis of the effects, on the observable organizational structure of the elementary school and the relevant attitudes of the staff therein, of one-way (i.e. principal-to-staff) administrative communication concerning a desirable organizational structure. Many elements, personality of staff for example, were beyond the scope of this study even though it was recognized that such elements may conceivably play a considerable role in determining the characteristics of the

organizational structure which occur in any given school. Other elements, such as school size and the supra-system organization, were taken into consideration as much as possible through sampling and statistical techniques.

II. THE IMPORTANCE OF THE STUDY

The belief in the worthwhileness of a study of administrative communication within the context of organizational structure is based upon a number of concepts drawn from relevant theory. This related literature will be discussed in detail in the next chapter. However, some mention should be made at this time of the importance of communication (and hence the importance of a study thereof) with respect to various aspects of human behavior--especially that behavior which both directly and indirectly impinges upon educational administration.

The Importance of Communication to Organized Systems

The concept that communication is essential to the functioning of all organized systems ". . . including the physiological co-ordination of organs and tissues in living organisms, and the electronic co-ordination of computers," (22:185) does not appear to be in dispute. Whether one considers this in terms of input-output (24:76-7) or the tolerance for interdependence (21:162), the importance of communication is inescapable. As Ackoff (2:64) described it:

The human elements of the system must be capable of responding to each other's activities and to the behavior of the system's environment either as a result of direct observation or by receipt of relevant information from those who have observed it. Hence communication holds the parts of the system together and keeps it in contact with its environment.

The Importance of Communication to Formal Organizations

There is no question that one of the foundation stones upon which organization rests is a system or systems of communications (12:307).

Writers such as Ackoff (1:33) have stressed the fact that the effectiveness of an organization is largely a matter of its being able to have the right information at the right place at the right time. Others, Knezevich (18:80) for example, have emphasized the need for an organization to establish a means of interchanging thoughts and co-ordinating efforts. They conclude that no organization could exist without communication among its various levels of operation. This approach is taken further still by a few completely communication-oriented "theorists," similar to Thayer (24:282) and Dorsey (11:310), who claim that communication is, in itself, the fundamental framework of organization and, concomitantly, that communication is administration.

The opinions of these and virtually all the other writers dealing with this area of study can be traced back, either directly or indirectly, to Chester Barnard. He, as Knezevich (18:527) acknowledged, is the inspirational fountainhead for innumerable existing concepts regarding

formal and informal organization. He made, amongst many others, the following statement (4:91) about organizational communication:

In an exhaustive theory of organization, communication would occupy a central place, because the structure, extensiveness, and scope of organization are almost entirely determined by communication techniques.

The Importance of Communication to Administration

Many statements have been made with respect to the importance of communication as it relates to the position and the function of the administrator. As was stated earlier, probably the most influential of those making such observations has been Chester Barnard. His theory (3, 4) of administration is completely interwoven with his theory of communication. He was emphatic (4:226-7) about the fact that the first function of an executive is to develop and maintain a system of communication. Litchfield (19:18) has made a summary of the administrative responsibilities surrounding this executive function.

Communication in administration involves three primary responsibilities. First the administrator must establish the channel, the method and the opportunities for communicating with all those above, below, and around him whose actions he would influence. Second, he must establish channels and provide the opportunities for others to communicate with him. Third, he must assure the existence of channels of communication among all those in the organization who must influence one another if the organization is to achieve its total objectives.

Green and Redmond (14:241) add a fourth responsibility,

"The administrator must assure that channels are used to provide each person with the information he needs to perform his functions effectively."

Having fulfilled these responsibilities, the administrator will find that a large percentage of his time is, of necessity, devoted to communicative acts. Dorsey (11:315), has listed some of the communicative duties involved.

. . . people who work in administrative organizations . . . find that the overwhelming proportion of their actions are communicative. If not immediately engaged in face-to-face discussions or conferences, they are preparing communications (reports, instructions, policy statements, letters, memoranda), processing or distributing communications, or receiving and reading communications. . . .

It is not surprising, therefore, that communication has been referred to (10:385) as the public administrator's primary tool, and that Davies (9), in discussing various aspects of the superintendency, frequently stressed the fact that communication is essential to the administrative functions of the superintendent. In the same vein, Thayer (24:3) has claimed that "The ability to communicate is the most used, and the most usable--hence the most valuable--ability any administrator may exercise in his job."

Others, who will be mentioned in later discussion, have theorized about the importance of communication as it is related to administration through: the administrative process; authority; decision-making; and various aspects of group performance. March and Simon (21:82) have explained

the reason for the existence of all this writing in the following way:

Communication is one of the least-understood areas in administration; yet there are few writers indeed who will question the importance of the organizing of a communicative structure within any situation.

Significance of the Study

It can be seen from the above discussion that communication is held to be of vital importance to many of those structural characteristics of the formal organization which are of significance to educational administration. The fact is, however, that there have been very few empirical analyses concerning the relationships, within the formal organization, between communication and structural characteristics. This is true of most organizations, not just those in education. Etzioni (13:137) has remarked, for example, that, "There are very few functional-structural studies of communication, in particular of communication in organizations." The situation, with respect to educational research, is very much as Guetzkow (16:535) recently described the research situation generally:

The richness of materials at the individual and group levels has induced extrapolation of findings perhaps inappropriate for rigorous analysis of communications in organizations. Yet, with the dearth of studies about organizations, either from the field or laboratory, one can but join with others in speculation. Let us hope . . . [for] . . . an abundance of insightful, empirical studies in the very near future.

The present study was designed to conduct an investigation into the relationships which may or may not exist between the observed organizational structure in a school and the degree to which the principal has communicated to his staff his own opinions and attitudes concerning a desirable organizational structure. In doing so, this study has attempted to assist in the filling of the research vacuum seen to exist by Guetzkow and others.

III. STATEMENT OF THE PROBLEM

The problem was to investigate the relationships between the degree to which the school principal communicates to his staff his attitudes and opinions concerning the desirability of a bureaucratic organizational structure and the degree to which a bureaucratic organizational structure is observed to exist in the school. Contained within this primary analysis were the integral investigations of the relationships existing among the following elements: the degree of principal-to-staff communication concerning organizational structure; each principal's and each staff's degree of approval of a bureaucratic organizational structure; the degree of congruency between each principal and his staff with respect to the desirability of a bureaucratic organizational structure; the degree of bureaucratization observed to exist in each school; each principal's degree of dogmatism.

To pursue the solution to the problem logically and more specifically, it was broken down into a number of related and necessary tasks.

Firstly, a sampling of schools was selected. This was done on the basis of statistical principles as well as on practical grounds. For example, where possible, sampling assisted in controlling some of those variables, other than communication, which might have caused differentiation in degrees of bureaucratization. Thus schools as similar as possible with respect to such factors as size, number of teachers, number of pupils, and so on, were selected.

Secondly, instruments were distributed to selected schools and teachers in order to determine: the degree of bureaucratization observed to exist in the school; the degree to which the principal had made his staff aware of his opinions and attitudes concerning the desirability of a bureaucratic organizational structure; the degree to which the staff agreed with these opinions and attitudes.

Thirdly, and similarly, an instrument was used to question each principal with respect to his opinions and attitudes concerning the desirability of a bureaucratic organizational structure. In addition it was thought that it might prove useful to include some tested measure of principal personality (e.g. dogmatism) that, on logical grounds, appeared to be related both to communication and to

attitudes held toward a bureaucratic organizational structure.

Fourthly, personal data concerning the principals and teachers involved were collected not only to provide for additional statistical checks and controls (i.e. to examine sex, age, experience, and so on, as possible influencing factors) but also to provide the opportunity for additional statistical analyses to determine if unforeseen relationships and elements were involved.

Lastly, a statistical design was chosen. The details of the research design selected and the approaches used to carry out the other tasks outlined above, are included in subsequent chapters of this report.

IV. DEFINITION OF TERMS

Communication

Although communication has been defined many times in many ways, the following definition (5:5-6) satisfied the needs of this study*. Communication is ". . . the transmission of stimuli from one individual to another with or without conscious knowledge of such transmission on the part of one or both."

*A similar definition which also would have fulfilled these needs (8:110) concerns communication in industrial organizations: ". . . the capacity of an individual . . . to pass on his feelings and ideas to another individual (or group) . . ."

Principal's Communication Rating

This term refers to the principal's score derived by means of a comparison between the opinions expressed by the principal on the Principal's Organizational Structure Opinion Scale (infra p. 77) and the degree to which the staff, as measured by part of the Staff Organizational Structure Opinion Scale (infra p. 75), is aware of these opinions. The higher his "Rating" the more effectively the principal has communicated opinions and attitudes to his staff.

Consistent with the general definition of communication, mentioned above, the "Principal's Communication Rating" is a derivative of both intentional and non-intentional communication* (5:10-11). By "intentional" communication is meant that type of communication in which the meaning actually transmitted in a message is congruent with the intent of the sender. Thus "non-intentional" communication occurs when the meaning derived from the message by the receiver of that message is considerably different from that intended by the transmitter. Similarly, an individual (e.g. a school principal) may not intend to transmit any meaning at all and yet others (e.g. teachers) infer a meaning from certain stimuli, such as gestures and other signs, being transmi-

*Related, to some extent, to Griffith's extensional and intensional meanings (15:81), and to Halpin's verbal and muted language (17:253-279).

tted without the conscious knowledge of that individual. Consequently, non-intentional communication may affect the effectiveness of intentional communication or it may not affect it at all. In this study, the examination of communication was restricted to a principal's effectiveness in communicating to his staff his opinions and attitudes about the organizational structure of his school. Thus, as Benvenuto stated (5:11) in connection with a study using a similar definition of communication, "It matters not whether his communication is intentional or non-intentional. The important thing is whether or not he communicates his opinions."

Bureaucracy

By bureaucracy is meant (7:14): "The type of organization designed to accomplish large-scale administrative tasks by systematically co-ordinating the work of many individuals . . ." More specifically, this type of organization is most often characterized in terms of a number of dimensions. Earlier attempts at defining these dimensions were examined in order to derive "consensus" definitions. This was facilitated by the use of the summary made by MacKay (20:14) of the bureaucratic dimensions discussed by various writers in the literature. It should be noted, however, that despite this broad approach each of the following definitions proceeds primarily from Weber's theory (7:28-33; 25:330-337).

Hierarchical authority. The appointed positions within the formal organization are connected via a hierarchical status structure; thus a higher position is legally and rationally empowered to make, communicate and enforce legitimate decisions intended and expected to co-ordinate and guide the actions of the lower position. The more inclusive and prescriptive these decisions, and the less the participation of the subordinate position in their making, the more bureaucratic the organizational structure.

Specialization. The structure of the appointed positions within the formal organization is characterized by a systematic and functional division of expert labor with clear-cut delineations of authority and responsibilities.

Behavioral rules. The responsibilities of each of the positions within the hierarchical status structure, and the relationships between them, are delineated, formalized, standardized and strictly and uniformly enforced through a system of consistent and explicit written rules and regulations.

Procedural specifications. Consistent with the established hierarchical status structure, a system of standard procedures is established and strictly adhered to in order to ensure the uniformity of organizational operations and individual task performances.

Impersonality. Organizational decisions and authority relationships are characterized by an impersonal detachment which permits impartial and equitable treatment and efficiency. This is also true of those decisions, relationships and treatments concerned with the organization's clients*.

Technical competence. The method of selecting members to enter the organization, and the system of allocating and promoting these members within the context of the hierarchical status structure is based upon an objective evaluation of their technical qualifications, professional abilities, experience and achievement.

Observed Degree of Bureaucratization (20:32)

This is a teacher's estimate of the degree to which the bureaucratic model, measured by the Organizational Structure Questionnaire (Appendix A), and his school's organizational structure are congruent. An analysis of all such teacher scores in any one school constitutes the OSQ Score descriptive of that particular school.

*A further complication, in the school situation, are those decisions, relationships and treatments concerned with what Bidwell has called (6:978) the "indirect clientele"; namely, the parents.

Principal's Organizational Structure Score

This refers to the degree to which the principal considers the bureaucratic organizational structure as being desirable in a school. The score is measured by the Principal's Organizational Structure Opinion Scale (see Appendix C).

Staff Organizational Structure Score

This refers to the degree to which the staff considers a bureaucratic organizational structure as being desirable in a school. The score is measured by the Staff Organizational Structure Opinion Scale (see Appendix B). An item by item comparison of each staff member's score with that of the principal's, when totalled for all staff concerned, provides a Congruency Score. Hence, the greater the degree of agreement on each item between the Principal's Organizational Structure Score and that of each of his staff the higher the Congruency Score for that particular school.

Dogmatism

This, as measured by the Dogmatism Scale (see Appendix D), refers to individual differences in the extent to which total belief systems are open or closed. The more dogmatic the individual the more "closed" his belief system and hence the higher his score on this scale (i.e. the scale

emphasizes how people believe rather than what). According to Rokeach (23:54-64), the more closed the belief system; the greater the degree of rejection of disbelief systems; the greater the degree of differentiation of the belief system as compared with the disbelief system; the smaller the degree of differentiation within the disbelief system; the greater the belief in absolute authority; the more other persons are evaluated according to the authorities with whom they agree or disagree; the more will peripheral beliefs be related to each other through intrinsic connections; the narrower and more future-oriented the time perspective.

Principal's Dogmatism Rating

This refers to the principal's score on the Dogmatism Scale. [In this study the Scale was called the Principal's General Opinion Scale].

V. OVERVIEW OF THE REPORT

The first chapter included: the statement of the problem; a discussion of the importance and significance of the study; a definition of terms. Chapter II concentrates upon an analysis of the problem by means of a review of pertinent background literature and upon an enumeration of the researchable sub-problems, and concomitant hypotheses, proceeding from the theoretical framework. Chapter III is

devoted to the sampling and research procedures, instrumentation and statistical methods used in the study. Chapters IV to VI examine, discuss and analyze the results of the study. A summary of findings, conclusions and implications for further research is included as the final chapter.

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CHAPTER II

ANALYSIS OF THE PROBLEM

I. REVIEW OF THE LITERATURE

It is the intent of this section to review the background literature pertaining to the problem. That is to say, it is concerned in the main with the theory relevant to communication and a bureaucratic organizational structure. The great bulk of the empirical studies not directly concerned with organizational communication have been excluded deliberately for they have, as Guetzkow (supra p. 6) has stated, little or no applicability to the organizational situation unless extensive and somewhat dubious extrapolation is carried out. The small-group laboratory approach ". . . like the communication net studies, has, as yet, contributed little absolute knowledge about behavior under realistic communication situations" (3:106). At the same time, that research which has been concerned with the formal organizational situation has not provided much empirical information about communication. Bidwell, in a recent and extensive review (10:972-1022) of the theory and research directed towards the school as a formal organization, pointed out (10:993) that the findings about organizational structures, processes and environment contain ". . . serious gaps--most

notably the absence of studies of communication in school systems."

Communication and Bureaucracy

The presentation of the literature pertinent to the relationships between communication and organizational structure has been broken down into six sections--one for each of the six previously defined dimensions of bureaucracy. This has been done in an attempt to make the rational connections between the theory, definitions (supra pp. 9-15), hypotheses (infra pp. 47-52) and instrumentation (infra pp. 59-81) easier to trace.

The greatest emphasis has been given to the section on hierarchical authority. This is so for several reasons. Firstly, most of the literature concerned with bureaucratic organizational structure is devoted to the various aspects of authority. This includes those relationships between communication and the all-important authority of position. For example, as Chester I. Barnard stated (5:235) some twenty years ago:

. . . the primary specific abilities required in communication are those of position--of being at the place where communication may effectively be had and where immediate concrete knowledge may be obtained. The manning of posts of communication by those possessing the requisite abilities of position is so indispensable to co-operation that a system assuring such manning and hence the acquirement of such abilities has precedence over all other considerations in an organization, for

the breakdown of communication means immediate failure of co-ordination and disintegration of organization.

Secondly, and consistent with the first reason, Max Weber--the German sociologist whose analysis began the study of bureaucracy--centered his study around internally differentiated and institutionalized authority (38:333-334). A study of the literature supports the emphasis given by Weber to hierarchical authority as it indicates that the other dimensions, providing the necessary legal and rational support, occur as a logical consequence of this authority.

Thirdly, and consistent with the "consensus" definition of hierarchical authority (supra p. 12), decision-making is an integral part of the rationale supporting the existence of authority in a bureaucratic organizational structure.

Lastly, the instrument used to measure the degree of bureaucratization observed to exist in a school, the Organizational Structure Questionnaire (Appendix A), was designed to consider the related dimensions entirely in terms of hierarchical authority.

Communication and Hierarchical Authority

Communication and authority. The concept of "authority" has evoked a host of definitions involving various combinations of such terms as influence, coercion, power,

suggestion, agreement, persuasion, sanctions, acceptance, and so on. For the purposes of this study, the most useful definition was the decision-oriented one of Simon's (35:125):

"Authority" may be defined as the power to make decisions which guide the actions of another. . . . The superior frames and transmits decisions with the expectation that they will be accepted by the subordinate. The subordinate expects such decisions, and his conduct is determined by them. The relationship of authority can be defined, therefore, in purely objective and behavioristic terms. It involves behavior* on the part of both superior and subordinate. When, and only when, these behaviors occur does a relation of authority exist between the two persons involved.

The definitive statement on the effects of authority upon communication was made by Chester Barnard (5:207-244). The following quotation (5:228) summarizes the majority of Barnard's key concepts:

The executive, then, is much preoccupied with systems of status because they are important in the authentication [sic] of communications, indispensable in establishing a working presumption of the authoritativeness of their content, and essential to their intelligibility.

Research findings concerning the effects of status on organizational communication tend to show, amongst other things, that the mere reception of communications from a superior may affect positively the attitudes held by the

*In this connection it has been said (3:92) that, "All organizational behavior depends upon communication because attitudes and behavior are themselves forms of communication."

subordinates toward the authority of that superior. For example, research examining elementary school (32:341) and high school (32:342) principals found a significant and direct relationship between the teachers' perceptions of the principal as administratively effective and their perception of him as a good communicator. Berkowitz and Bennis (9) found that nurses attached greater importance and satisfaction to communicative contacts with superiors than those with equals and subordinates.

In writings (6:173) on much the same topic, Barnard described how men impute to communications from their superiors an authority which is more or less independent of the personal abilities of these superiors. This authority of position is respected by the subordinates only so long as the superiors do not violate those expectations of authoritative behavior contained within the subordinates' commonly held zone of indifference.

It may be said, then, that the maintenance of objective authority adequate to support the fiction of superior authority and able to make the zone of indifference an actuality depends upon the operation of the system of communication in the organization. The function of this is to supply adequate information to the positions of authority and adequate facilities for the issuance of orders (6:175).

It is this same link between communication and the issuance of orders which concerned Simon (35:164). He noted the fact that communications flowing through formal channels

have their effect enhanced not necessarily by logic but rather by the authority of their official character. This weighting of communication applies to upward as well as downward transmission. Unsolicited or unofficial communications, e.g., advice, are apt to receive short shrift unless they originate with someone in some manner of influential position. Thus, for Simon, the crucial point is whether the behavior of the recipient of an order, or some other kind of communication, is influenced by it or not. He observed (35:158) however, that in formal organizations it is far easier for communications to go down than up, for ". . . even when the executive maintains an official 'open door' policy, accessibility is regulated by informal social controls plus the device of a private secretary."

Thus it can be seen that many potential problems spring to mind when considering the impact of authority upon organizational communication. However, there are those who indicate that the competent administrator need not shy away from the responsibilities involved in being a focal point (6:215; 29:165-7) of and for authoritative communications:

The experienced administrator knows that someone must be boss, that multiple direction is at best confused direction, and that clear lines of relationship, authority, and organization are essential to proper co-operation. Otherwise, the signals are not clear, wires get crossed, a proper flow of communica-

tions throughout the program cannot be established, and all elements necessary for the performance of a unified task cannot be brought together in one place. . . . for every enterprise there must be a deciding authority, where all communications center and where full coordination can take place (14:162-3).

Communication and decision-making. Decision-making as seen by Griffiths (23) and Simon (35), is the key to administration. It is around this function that all of administration revolves. Hence, decision-making is not seen as merely one of a series of administrative functions but as the administrative function through which all other aspects of administration are explicable. It is for this reason that Simon (35:154) was able to provide the following definition of communication in terms of decision-making:

Communication may be formally defined as any process whereby decisional premises are transmitted from one member of an organization to another. It is obvious that without communication there can be no organization, for there is no possibility then of the group influencing the behavior of the individual.

Many others, such as Thayer (35:80-87), Dorsey (15:309-10) and Wengert (39:10), also have subscribed to this view of communication. Thayer, in agreeing with Simon, described communication (36:80) as ". . . the warp and woof of administrative problem solving and decision-making."

Dorsey took this approach one step farther--some may feel he took it too far--and declared that since administration is founded upon decision-making and since decision-

making is inextricably linked to communication, then it follows that administration is a communication process. Wengert, while not going this far, asserted that no decision can be considered as completed until it has been communicated. In this latter regard, Litchfield (27:17) saw a definite relationship between the effectiveness of a decision and the extent to which it is communicated to those who will be expected to take action upon receiving it.

Communication, decision-making and organizational adaptation. It is all the above considerations, in addition to the location of decision-centers (35:156), the problems surrounding the adequate flow of communications (35:163), the interpersonal relations of an informal organization operating within the formal structure (35:148-9, 157, 160-1), and the pattern of the established communication channels (29:168), which make it possible to examine organizational adaptation in terms of communication and decision-making.

Another way of discovering the extent of organizational adaptation to change is to study the development of communication structure in business enterprises. . . . As is well known . . . the direction and extent of information flow within the firm should be closely related to organizational structure. Decision centers are located, inter alia, in light of communication considerations, and conversely, given the pattern of administrative assignment, communication must be organized so that decision makers receive the information which has significance for the profitability of their decisions (28:11).

For example (28:11), if an organization begins to decentralize decision-making there normally should be a significant development, at the level of the middle and lower echelon decision-centers, of the more direct and extensive horizontal communication required for effective coordination.

Regardless of such adaptation, the administrator, as the focus of a decision-center, invariably will find his communication task a heavy one*. However, the administrator's burden is usually lightened somewhat, by the organization, through the provision of staff office assistants (35:165). These assistants can, to a substantial extent, draft outgoing communications, screen incoming communications and provide the necessary links for routine inter-office liaison. Indeed, some very complex organizations go so far as to establish a communications department (39:117). This department initiates and unifies, via highly-trained statistical, mathematical and engineering personnel, all those communication activities which are to be used for executive information and action. Similarly, as Simon (35:165)

*Of specific interest to education is some recent research (2:532-3) which discovered that the high school principals observed in a study of a school system spent 55.9 per cent of their time involved in communication. Most of this communication was face-to-face with subordinates, particularly teachers.

explained, less complex organizations also find it necessary to develop some form of communications department to assist the decision makers:

Because of the great importance of communication to their functioning, most organizations, even of moderate size, develop certain specialized communication tasks. Decision-centers themselves--that is executive positions--must often be staffed with persons who can assist the executive in his communication functions. The organization develops specialized repositories of its official "memory"--files, records, libraries, follow-up systems. Organizational units may be established to handle specific information-gathering functions: accounting, inspection, administrative analysis, intelligence, and the like.

Communication and Specialization

Bidwell recently has stated (10:975) that ". . . the division of labor in school systems is both temporal and functional . . . the temporal division of labor is tied to the age-grade placement of students*." By way of elaboration he has pointed out that it is the temporal dimension, rather than the differentiation of content to be learned, which is the significant basis for the division of labor in the elementary school. That is to say, the teacher is in

*This relationship between the temporal division of labor and the age-grade placement of the students is (10:975) ". . . not typical of other times and places, suggesting that it arises as school systems become routinized. . . ."

charge of all phases of instruction for one classroom group for a school year. In the secondary schools the functional division becomes more important for it is here that each teacher instructs several classroom groups in a single subject-matter area.

A systematic and functional [and temporal] division of labor means that, despite a clear-cut delineation of responsibilities, the co-ordination of parts is required. The purpose of administration, in fact, may be defined (13: 75-76) in terms of this necessary co-ordination:

. . . the central purpose of administration in any organization is that of co-ordinating the efforts of people toward the achievement of its goals. In education these goals have to do with teaching and learning.

Parsons (31:74-6) viewed such co-ordination as a "mechanism" of inter-related decisions: policy decisions; allocative decisions; integrative decisions. Relating Parsons' definition of each of these types of decision to the school situation, the co-ordinating activities of the principal take the form of the following examples: the determination of the organizational structure essential to the internal operation of the school; timetabling (i.e. allocation of teachers, classes, rooms, resources and time); allocating, establishing and maintaining the responsibilities of, and the lines of authority and communication with, teachers, pupils, other administrative personnel, guidance

personnel, non-professional staff, and so on; dealing with those measures concerned with maintaining co-operation amongst the specialized parts of the hierarchical authority structure.

"The problem of co-ordination is largely one of communication, for without efficient communication no co-ordinated effort is possible" (12:110). Without these co-ordinating decisions within the framework of the hierarchical status system specialization would result in chaos. Thus it would appear that the success of the bureaucratic division of labor is dependent upon communication.

Communication and Behavioral Rules

Taking his main points from Gouldner (22:162-174), Franklin (19:3) and Dubin (16:272-273), Anderson (1:11-12) has made a summary of the primary functions that rules serve within a formal organization:

1. Directing subordinate efforts toward a sub-goal of the organization.
2. Controlling behavior from a distance.
3. Impersonalizing relations between superiors and subordinates.
4. Regulating the discretion allowed subordinates
5. Protecting organizational members from extra-organizational pressures.

6. Legitimizing the use of punishment by superiors.
7. Acting as a bargaining point between superiors and subordinates.
8. Legitimizing the authority of superiors.
9. Providing security for the members of the organization.

Communication can be observed as implicit in the directing, controlling, regulating, protecting, acting, legitimating, and so on, mentioned above. As Griffiths said with respect to the field of education (24:71), "The administrator leads through the use of words." A great deal of his time, therefore, is devoted to "... bulletins, notices, handbooks, or other types of communicative documents." It is through such written means, as well as through oral contacts, that the administrator attempts to inform his staff of the intent of some rule or regulation. By so doing, he is pointing out the rational and legal verbalizations which are designed to facilitate hierarchical authority and thus maintain and strengthen the bureaucratic organizational structure. External pressures make this more necessary than would otherwise be the case.

Both administrators and teachers are at the same time exposed to a community constituency which legitimately defines standards of school effectiveness and can enforce these expectations. Consequently, the school administrators, like teachers, must exercise primarily

dominative authority* and enforce teachers' compliance to rules and regulations (10:980).

Communication and Procedural Specifications

According to Bidwell (10:974-975), a system of standard procedures designed to enhance the effectiveness of hierarchical authority by limiting the discretionary performance of organizational members, is essential to the functioning of the school for two reasons. Firstly, despite the marked variations in the kind and degree of client ability, society holds the school responsible for ensuring that all students receive a minimum standard of socialization as well as preparation for a variety of occupational roles.

In other words, while at any point in time the members of a cohort of students may vary in their readiness for socialization, so that methods of socialization also must vary at this time point according to these individual differences, the school system must routinize the variability of its service procedures. Essentially, this means that procedures must be selected universalistically on the grounds of variable student aptitude, for all students of given kinds and levels of ability must undergo similar forms of socialization (10:974).

*Becker(7:476) found that principals have more power over teachers than the heads of other professional organizations have over the professionals they employ.

Secondly, the complexity and immensity of the job of socializing children and adolescents for adult roles is a consequence of the necessity of providing (10:975) ". . . coherent sequences of increasingly differentiated and demanding socialization tasks. . . ." over long periods of time. Thus, as the adult roles for which children are being trained become more complex and specialized and the children must spend a correspondingly longer time in school, those in the authority structure responsible for the administration of the schools must devote an ever-increasing proportion of their time to co-ordinating activities.

As was mentioned earlier (supra p. 30) this co-ordination cannot occur without communication. With adequate communication the goals of the procedural specifications can be achieved. These are: a uniform assessment of pupil achievement; a degree of uniformity of socialization of the product (as demanded by society); a sequential and routinized movement of students from grade to grade, from classroom to classroom and from school to school.

Communication and Impersonality

The rationale underlying a deliberately impersonal approach in all bureaucratic relationships and functions has been summarized by Brown. He stated (12:106) that:

. . . each member of the organization is supposed to react toward the others, not in personal terms of like or dislike, but in terms of the function they have to play in the whole, the place they occupy in the hierarchy. Thus in dealing within the organization . . . such matters as sex, religion, personal appearance, and manner are supposedly irrelevant; behavior is determined by relative status alone. This insistence on formal relationships should . . . be an advantage, since its function is to eliminate (or to attempt to eliminate) all individual peculiarities and personal prejudices.

Thus, in a school possessing bureaucratic characteristics, principal-staff authority relationships would be operative in keeping with the military adage of "friendly but firm." That is to say, the principal need not be unpleasant in order to be impartial and equitable with respect to his treatment of teachers. This impersonal detachment would also be descriptive of the principal's dealings with pupils and parents. It is these latter relationships, however, which present more problems for the teachers than for the principals.

. . . since teaching is a form of socialization, the teacher must, in the nature of the process, interact affectively with students and develop particularistic relations with them. At the same time, his organizational and broader social obligation to produce competent recruits for adult roles, and the need for classroom order, impose on him the necessity to judge and to punish impartially and universalistically (10:993).

A study by Gordon (21) indicated that the manner in which teachers resolved this dilemma depended, to some

extent, upon their sense of security*. Thus, in the high school intensively analyzed by Gordon, the more secure the teachers felt with respect to their position the more they were able to maintain the expected (i.e. required by school policy) affective neutrality and to use their official hierarchical authority to maintain class control. The principal, in this particular school, looked upon good teaching as being evidenced by good classroom control. Reeves (33: 175) summarized the rationale for this viewpoint as follows:

Control of pupil behaviour in the classroom is generally regarded as one of the marks of a good teacher. Effective teaching and learning cannot take place if the behaviour of the pupils interferes with proper classroom activities. One of the important administrative tasks of the teacher, therefore, is to maintain whatever controls are necessary for providing an atmosphere conducive to effective learning.

This belief, plus the stated school policy of affective neutrality toward students, indicates that this principal favored a more bureaucratic organizational structure (i.e. a greater degree of hierarchical authority). When combined with Moeller's findings (30) that the greater the degree of

*A recent study by Anderson (1:87-93) found that: male teachers tended to be more impersonal than female teachers; teachers in large schools were more impersonal than those in small schools; teachers in schools serving middle class clients were more impersonal than teachers in schools serving lower-lower class clients.

school bureaucratization the greater the feeling of power on the part of the teachers, it would appear to indicate that the more secure teacher was one who was more aware of his principal's opinions and, thus supported, was less likely to feel the need to use affective classroom relations to maintain control.

Consequently, one might tentatively suggest that some sort of relationships exist between the degree to which a principal has made his staff aware of his opinions and attitudes concerning the extent to which he regards a bureaucratic organizational structure as desirable, and the degree to which his staff agrees with him. The principal and staff desire for a greater degree of hierarchical authority, in turn, should have some relationship to the degree of bureaucracy which is observed actually to exist in that school. Such relationships probably include the school's behavioral approach toward the pupil and the parent in addition to the authority relationship between staff and principal. Becker (7), for example, found that in the area of pupil-parent relations teachers looked to the principal as a supportive official authority. This is consistent with the definition of impersonality (supra p. 13) and the relevant items on the Organizational Structure Questionnaire (Appendix A).

Communication and Technical Competence

Employment in the bureaucratic organization is based on technical qualifications and is protected against arbitrary dismissal*. 'It constitutes a career. There is a system of promotions according to seniority or to achievement or both' (11:30).

Some of this applies to the teacher as well as the administrator. However, there are those that feel that the teaching profession could be made more attractive by somehow providing a more bureaucratic promotional ladder within the teaching profession. Gibson and Hunt (20:301), for example, claimed that:

The opening up of a wider range of career alternatives in teaching should reduce the pressures or the attraction to move into administration, should open up more realistic career prospects for capable and dedicated young people, and should reduce anxiety through a greater variety of reward possibilities.

Regardless of such recommendations, teachers at present have a far less bureaucratic career than do administrators. That is to say, the bureaucratic status structure promotional ladder is clearly drawn for the administrator and his salary is based, to a large extent, upon position. The teacher's salary is tied almost exclusively to seniority and teacher training. Thus his "promotions" are more in the form of automatic pay increases according to a negotiated single

*See C. K. Brown, "The Development of Teacher Tenure Legislation in Alberta" (unpublished Master's thesis, University of Alberta, 1963).

salary schedule. However, in some areas where a positional salary schedule is used, higher pay and more prestige would be gained by the teacher moving from the elementary school level "up" to the high school. This, in a controvertible sense, might be considered a promotion.

Do any real positional promotions exist for the teacher unless, in a move which Etzioni (17:254) described as dysfunctional to the organization, he leaves the teaching profession and makes educational administration a career? In schools of sufficient size, such as the larger urban secondary schools, subject-matter department head or coordinator appointments constitute a form of reward or promotion. The "master teacher" designation in schools using the team-teaching approach might also be viewed in this way. In smaller schools, especially those elementary schools using the one-teacher-one-class type of organization, any sense of promotion within the teaching cadre would appear rather difficult to come by. Movement is more likely to be horizontal than vertical. That is to say, promotion is movement to another school with a better "prestige" rating or where the teaching situation is more to the taste of the particular teacher concerned (e.g. a different socioeconomic area or a different grade).

While this movement of teachers between schools normally is based upon a combination of central office policies

and teacher requests and applications, the principal has some say as to what teachers enter and remain in his school. If the principal communicates to his staff that he "screens" incoming teachers on the basis of their merit (i.e. qualifications, capabilities and seniority) and retains and assigns them on the same basis, this should* give the staff a more favorable opinion of their school and of the objectivity of the school system's overall personnel policy than if it is communicated that such movement is based more on personalities than on technical competence. Thus, in each school, the approach of the principal with respect to the technical competence of teachers will constitute an element of the principal-staff authority relationship. However, this is probably far more true of the secondary school--where, as a consequence of the differentiation of subject matter to be taught, teachers have considerable concern with the division of labor on the basis of technical competency--than of the elementary school where it is the temporal dimension which is the basis for the division of labor (see Communication and Specialization, supra pp. 28-30).

*Reeves (33:226), in a summary of representative items selected from the various codes of ethics for teachers across Canada, included the following items: "A teacher should apply for positions only through the proper channels and only on the basis of competence; it is unethical for a teacher to follow any but the proper and recognized channels for promotion or self-advancement."

Communication and Dogmatism

Dogmatism, as defined by Rokeach (supra p. 15), apparently is related both to communication and to the primary aspect of the bureaucratic organizational structure, authority. Rokeach pointed out (34:57-8) these relationships in the following manner:

This leads us to suggest a basic consideration that defines the extent to which a person's system is open or closed; namely, the extent to which the person can receive, evaluate and act on relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation arising from within the person or from the outside. . . . By irrelevant pressures from the outside we have in mind most particularly the pressures of reward and punishment arising from external authority. . . . Will the information received about a situation from such external sources be evaluated and acted on independently or in accord with expectations about how the external source wishes us to evaluate and act on this information? . . . The more closed the belief system, the more difficult should it be to distinguish between information received about the world and information received about the source.

From this it may be concluded that the more dogmatic the principal the more he conducts his positional activities according to the way in which he believes the "external authority" (i.e. central office) wishes him to act. One might suspect that this orientation could be true, to some extent, of all principals. The principal finds himself appointed to a position where his role is established, in the hierarchical structure, according to the prescribed boundaries of authority, responsibilities, privileges and

obligations*. Further, the principal has a graded career with success dependent upon an orientation of outlook and actions toward those valued by the central office. However, as in any position, the personality of the incumbent also plays a part in determining the extent to which accommodations within a role are made. How might this affect the principal's relationships with his staff?

By definition, a more dogmatic principal will see himself as very much a part of a hierarchical authority structure. Hence he will see the central office as possessing more status than himself while he possesses more than does his staff. By extending the research findings of Vidulich and Kaiman (40) to the school, one could say that the more closed-minded principal will agree significantly more with "high" status information sources than with "low" status sources. Thus any conflicts between the wishes of the central office and those of his teachers probably will be resolved in favor of the central office. Similarly, the more dogmatic principal will probably insist upon and get his way more often [than the more open-minded principal] as

*For a discussion of this problem see E. M. Bridges, "Bureaucratic Role and Socialization: The Influence of Experience on the Elementary Principal," Educational Administration Quarterly, I (Spring, 1965), pp. 19-28.

far as day-to-day operational decisions are concerned-- invoking the supporting authority of the central office when and where necessary. The bureaucratic organizational structure provides him with the institutionalized authority which makes this kind of accommodation possible. Theoretically, therefore, the more dogmatic principal, through the very persistence of his "party-line" thinking (34:225-242) and his ready use of his legitimate bureaucratic authority, will have made his staff very much aware of his opinions and attitudes concerning policies and matters related to organizational structure.

What of the effect of the more dogmatic principal upon the opinions of his staff? According to the theory proposed by Festinger and Aronson (18), a highly credible communicator who advocates a more extreme position should produce greater opinion change in the receivers than a less credible communicator or a communicator with a less extreme position. (Credibility has to do with the degree of respect for the communicator held by the receivers). This was borne out by the research conducted by Aronson, Turner and Carlsmith (4) which found that a direct relationship exists between the credibility of the communicator and the induction of opinion change in the receivers. They found that the more highly credible communicator was more successful in inducing opinion change, over a number of existing opinion

discrepancies, than the less credible communicator. Further, for the more highly credible communicator, the degree of opinion change of the receivers increased with the degree of original discrepancy.

Consistent with the relevant concepts of Barnard, the staff of a school, in all likelihood, respect the authority of position of the principalship. Thus, even though they may initially disagree with the principal's opinions, the high credibility of the position should move them toward agreement with him--especially so in the case of the more unyielding attitudes of the more dogmatic principal. This seems to tie in with Washburne's viewpoint (37) that the teacher who does not have his professional role expectations supported (i.e. through a principal's softening of the hierarchical authority structure so as to grant the teacher more professional autonomy) soon adopts a more bureaucratic orientation designed to be rewarded by the organization. This implies that the teachers in a school where the principal is very much in favor of a bureaucratic organizational structure will have been made very much aware of his opinions on this matter and will have moved in the direction of those opinions, thus reinforcing them. Consequently, the organizational structure of the school should be more bureaucratic in character where the principal and staff favor a bureaucratic structure.

II. SCHEMATA

Summary of the Theoretical Formulation

For Barnard the structure of a bureaucratic organization, as evidenced by the hierarchical authority structure, is functionally related to the communication process which occurs. That is, the bureaucratic authority structure is delineated when a communication is transmitted from a superior hierarchical level and understood and accepted at a subordinate level. For Weber, similarly, the structure of a formal organization is its internally differentiated and institutionalized authority structure. This bureaucratic authority structure is delineated when an order is transmitted by a superior and obeyed by a subordinate such that the subsequent behavior of the subordinate is based upon the content of the order.

Both of these similar positions have been incorporated into much of the literature pertinent to organization theory. However, ". . . each has remained . . . largely as it was when originally formulated--a loosely related set of assumptions, concepts, and implicit propositions" (26:83-84). It is this state of affairs which precludes concise discussion and makes difficult the drawing of empirically testable relationships between communication and the hierarchical authority structure of the formal org-

anization. Subsequently, there is little or no empirical evidence of functional relationships with which either to support or refute Barnard and Weber on this particular point of convergence of their theoretical constructs. It was a search for such empirical evidence which was the underlying concern of the present study.

One further theoretical element also was included. As described by Rokeach, the degree of dogmatism of a person apparently is related both to communication and to attitudes toward authority. The present study used a restricted measure of communication. This assumed that the extent to which subordinates are aware of the opinions of their superior is an indication of the extent to which the superior has communicated these opinions to the subordinates. These opinions in the present study were focused upon just one main topic, namely the degree of desirability of a bureaucratic authority structure. Thus of subsidiary concern to the study was the degree of dogmatism of the principal who communicated to his teachers his opinions and attitudes concerning this authority structure.

Summary of the Variables Involved

The previously defined (supra pp. 9-15) variables involved in this study may be summarized diagrammatically, as shown in Figure 1. The solid connecting lines represent

the hypothesized relationships which the a priori statistical analyses were designed to investigate. The dotted lines represent those potential relationships for which a posteriori tests could be used if required.

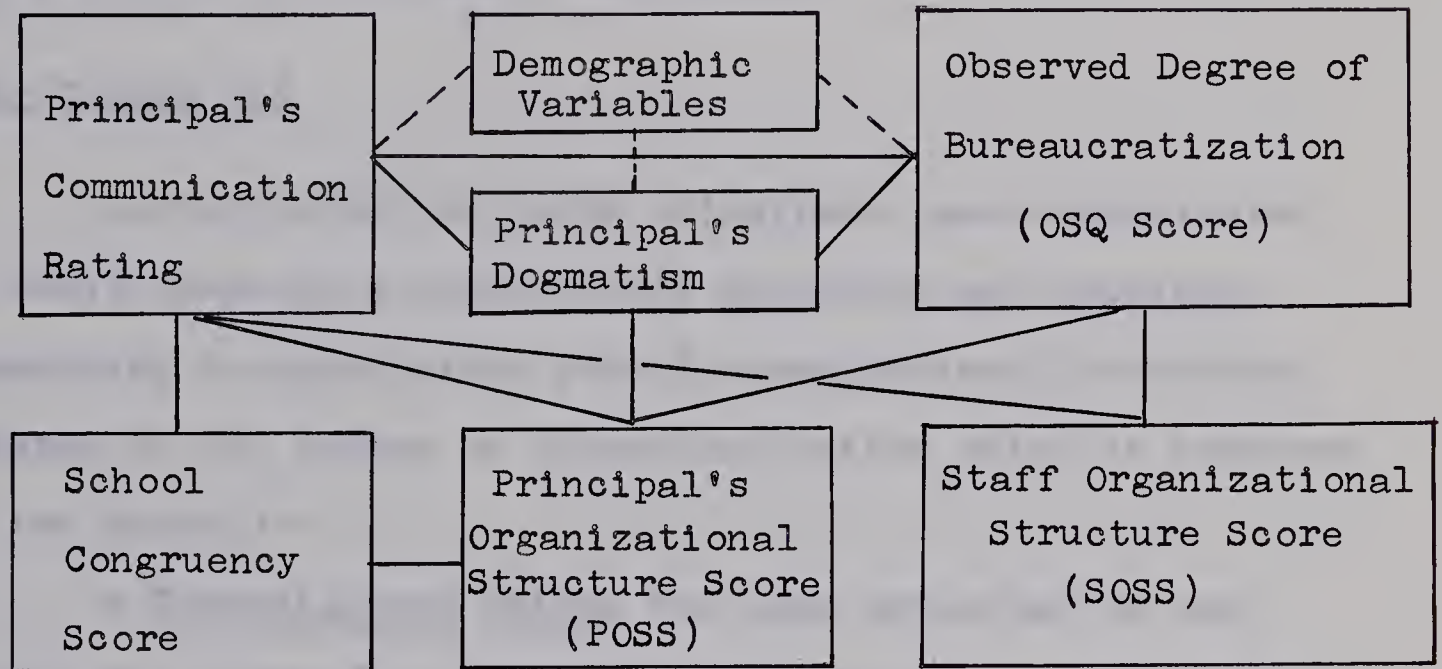


FIGURE 1

SUMMARY OF THE VARIABLES AND RELATIONSHIPS
ANALYZED IN THE PRESENT STUDY

III. SUB-PROBLEMS AND HYPOTHESES

Several researchable sub-problems proceed from the theoretical framework discussed in Section I and summarized in Section II. These sub-problems in turn provide the bases for a number of pertinent hypotheses.

Sub-Problem 1.0

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the degree of bureaucratization which is observed in the school?

A Communication Rating for each principal in the sample was derived by obtaining the total of the scores of the individual teachers in his school on the appropriate part of the Staff Organizational Structure Opinion Scale (Appendix B). This purported to determine the degree to which the principal had made these teachers aware of his opinions and attitudes concerning the extent to which he considered a bureaucratic organizational structure as being desirable for their school.

The degree of bureaucratization observed by a sample of teachers to exist in their school was measured by the Organizational Structure Questionnaire (Appendix A). The total of all teacher scores in any one school constituted

the OSQ Score descriptive of that particular school.

Hypothesis 1.1. It is hypothesized that a direct relationship exists between the principal's Communication Rating and the school's OSQ Score.

Sub-Problem 2.0

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the nature and direction of these attitudes and opinions?

This sub-problem, in effect, is asking whether or not the principal who considers a bureaucratic organizational structure to be desirable communicates his opinions on this matter to a significantly greater extent than a principal who by comparison considers a bureaucratic structure to be less desirable.

The degree to which each principal in the sample considered a bureaucratic organizational structure as being desirable in a school was measured by the Principal's Organizational Structure Opinion Scale (Appendix C). The total score from this instrument was called the Principal's Organizational Structure Score, or POSS.

Hypothesis 2.1. It is hypothesized that a direct

relationship exists between the principal's Communication Rating and his POSS.

Sub-Problem 3.0

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the nature and direction of the attitudes and opinions of the staff on this matter?

The degree to which each teacher in this study's sample considered a bureaucratic organizational structure as being desirable in a school was measured by the Staff Organizational Structure Opinion Scale (Appendix B). The sum of the teacher scores in any one school constituted the Staff Organizational Structure Score, or SOSS, for that particular school.

Also implied in this sub-problem is the question as to whether or not a relationship exists between the principal's Communication Rating and, as indicated by the Congruency Score, the degree to which the staff agrees with the principal's opinions on what would constitute a desirable organizational structure. It is worthy of note that an examination of this aspect of the sub-problem provides an important link with sub-problem two. If it is found that the more the principal favors a bureaucratic structure

[POSS] the more aware he has made the staff of his opinions, then the discovery of a direct relationship between the principal's Communication Rating and the direction of the opinion of the staff (i.e. the degree of congruency) would be of particular significance. It would suggest, for example, a probable direct relationship between a principal's POSS and a school's Congruency Score.

Hypothesis 3.1. It is hypothesized that a direct relationship exists between the principal's Communication Rating and the school's SOSS.

Hypothesis 3.2. It is hypothesized that a direct relationship exists between the principal's Communication Rating and the school's Congruency Score.

Hypothesis 3.3. It is hypothesized that should both Hypotheses 2.1 and 3.2 be supported then a direct relationship exists between a principal's POSS and a school's Congruency Score.

Sub-Problem 4.0

Are those principal and staff attitudes and opinions, upon which the principal's Communication Rating is focused, related to the degree of bureaucratization which is observed in the school?

Hypothesis 4.1. It is hypothesized that a direct relationship exists between the POSS and the school's OSQ Score.

Hypothesis 4.2. It is hypothesized that a direct relationship exists between the SOSS and the school's OSQ Score.

Sub-Problem 5.0

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the principal's degree of dogmatism?

The hypothesis related to this question is derived from that theory which describes the characteristics of the belief structure of the dogmatic personality. This literature suggests the possibility that the more dogmatic the principal the more discernible the expression of his opinions and attitudes concerning the degree of desirability of a bureaucratic organizational structure; hence the more he will have made his staff aware of these opinions and attitudes. The degree of dogmatism of each principal in the sample was measured by the Dogmatism Scale. In this study the Scale (Appendix C) was called the Principal's General Opinion Scale. The principal's score on this instrument was called his Dogmatism Rating.

Should both hypotheses flowing from sub-problem two and sub-problem five be substantiated by an analysis of the relevant data it would warrant an analysis of the relationships between the principal's degree of dogmatism and the direction of his attitudes and opinions concerning the desirability of a bureaucratic organization.

Hypothesis 5.1. It is hypothesized that a direct relationship exists between the principal's Dogmatism Rating and his Communication Rating.

Hypothesis 5.2. It is hypothesized that should both Hypotheses 2.1 and 5.1 be supported then a direct relationship exists between a principal's Dogmatism Rating and his POSS.

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CHAPTER III

DESIGN AND PROCEDURES

I. DATA REQUIRED

To test the hypotheses, to provide additional statistical checks and controls, and to determine if unforeseen elements were involved, the following data had to be collected: characteristics of the schools sampled; personal background information about each of the teachers and principals involved; the opinions of these teachers and principals as to the desirability of a bureaucratic organizational structure; the knowledge of each of the staffs as to the opinions held by their respective principals concerning the desirability of a bureaucratic organizational structure; the observed degree of bureaucratization of each school involved; each principal's degree of dogmatism.

Characteristics of Schools

As opposed to a completely randomized operation, a somewhat selective sampling technique was used. However, by way of gaining additional information as well as verifying that information already held to be correct, each principal was asked to indicate: the grade structure of his school; the physical characteristics of the school (i.e. the total number of classrooms used; one story or more than one

story); the number of pupils; the number of teachers; the number of vice-principals; the number of full and part-time non-professional office help employed; the socio-economic area served by the school; the major medium of communication from principal to staff.

Personal Background Information

Each respondent was requested to supply the following information: sex; marital status; age; years of teaching experience; number of complete years of college or university training; special certificates and training; degree(s) held; major field of study for each degree.

Each teacher was asked for the following additional information: grade(s) taught in past year; subject specialty (if applicable); number of years taught in the present school; number of years teaching in present school with the present principal; if his or her classroom was in the same building as the principal's office; if his or her classroom was on the same floor level as the principal's office; the distance of his or her classroom, relative to other classrooms, from the principal's office.

Each principal was asked for the following additional information: total number of years of administrative experience; number of years in present position; number of teaching hours per week (if any).

Data on Organizational Structure

Data were needed on: the degree of bureaucratic organizational structure observed to exist by the teachers sampled in each school; the opinions of the teachers in each school as to the desirability of a bureaucratic organizational structure; the opinions of each principal on this same matter; the knowledge of each staff as to its principal's opinions concerning the desirability of a bureaucratic organizational structure. These data were essential to the determination of: each school's degree of bureaucratization; each staff's Organizational Structure Score; each principal's Organizational Structure Score; each school's Congruency Score; each principal's Communication Rating.

Data on Dogmatism

Each principal involved in the study had to be tested in order to determine his degree of dogmatism (i.e. the extent to which his total belief system was open or closed). This gave each principal a Dogmatism Rating.

II. INSTRUMENTATION

Background Information

Questions, as detailed above, pertaining to the

personal information about the teachers and principals and the characteristics of the schools concerned were included as a preliminary part of the questionnaires distributed. Questionnaires given to the staffs were the Organizational Structure Questionnaire and the Staff Organizational Structure Opinion Scale. The questionnaires distributed to principals were the Principal's Organizational Structure Opinion Scale and the Principal's General Opinion Scale.

The Organizational Structure Questionnaire

Introduction. This instrument (Appendix A) was used to measure the degree to which a bureaucratic organizational structure was observed to exist in each school sampled. Because of the lack of suitable existing instruments the Organizational Structure Questionnaire was developed especially for this study.

Assessment of existing instruments. The most extensively tested and refined instrument available was The School Organizational Inventory (Appendix E). As a consequence of certain problems the decision was made not to use this instrument.

Firstly, there was a problem with respect to the Inventory's multi-dimensional approach. It was designed to measure, via sub-scales, each of the six following dimensions (supra pp. 12-13): Hierarchical Authority; Specializa-

tion; Rules for Incumbents; Procedural Specifications; Impersonality; Technical Competence. Robinson (12:117) found* that:

Scales I, III, IV, and V are positively and significantly interrelated as are Scales II and VI. Scales I, III, IV and V are, however, negatively and significantly related to Scales II and VI.

Thus, on the basis of the Inventory's sub-scales, Specialization and Technical Competence were not positively related to the other four dimensions. This is contrary to Weber's theory (17:110-113) but supportive of Udy's contention (16) that the bureaucratic model contains negatively correlated bureaucratic variables and rational variables. Robinson (12:117) considered the Specialization and Technical Competence sub-scales to have tapped Udy's "rational" variables. This had definite implications for the present study. In order to concentrate upon the relationships between communication and bureaucratic authority, as assumed in the theoretical constructs of Weber and Barnard, it seemed preferable to avoid potential complications arising from negatively correlated sub-scales.

*Hall (7:295-308) and MacKay (11:74), using earlier versions of the Inventory, found Scale VI to be negatively and significantly correlated with four of the other scales.

The sample to be analyzed by this study was composed entirely of schools with elementary grades only. As mentioned in the review of the literature (supra p. 28), the bureaucratic dimension of Specialization has little applicability to the elementary school. In any case, an examination of the items [2, 8, 13, 22, 24, 30, 33] making up the Inventory's Specialization sub-scale revealed that only two of them were concerned with the teacher's actual teaching function. The rest had to do with teacher-janitor relationships and such activities as extra-curricular matters and paper-work procedures. This eliminated "Specialization" from inclusion, in the present study's analysis of bureaucracy, on an item by item basis as well as a dimensional basis.

As noted in the review of the literature (supra pp. 37-39), Technical Competence, especially with respect to bureaucratic promotion, is very tenuously related to the teaching profession. An examination of the items [6, 11, 17, 21, 26, 28, 32, 37] making up the Inventory's Technical Competence sub-scale revealed that only two of them were concerned with the basis for the allocation of teachers to schools. The rest involved bureaucratic promotion. This, as for "Specialization," eliminated "Technical Competence" on an item by item basis as well as a dimensional basis.

Consideration was then given to the possible use of the remaining thirty-three items of the School Organizational Inventory. These represented the remaining four "bureaucratic" dimensions. The items, though valid, were considered to be more general in approach than was suitable for the purposes of the present study. It was preferable, therefore, to develop a new instrument rather than to make any attempt at an extensive revision of the Inventory.

Selection of items. The Organizational Structure Questionnaire was developed in a number of stages. The first step was an extensive review of the literature. This generated 121 items constructed to determine an organization's degree of bureaucratization. They were, in the main, more specific in perspective than the items on the School Organizational Inventory. It was found that all items concerning "Rules and Regulations," "Standard Procedures" and "Impersonality" seemed closely and logically linked with "Hierarchy of Authority." For example, with respect to "Rules and Regulations," it was the extent of enforcement that seemed to be related to the degree of bureaucratization rather than the mere existence of such rules. These items were scrutinized and assessed in order to eliminate needless repetition and in order to ensure as much face validity as possible. This reduced the number of items from 121 to 70.

Those items retained were then reviewed by another member of the thesis committee. All items were subsequently confirmed as relevant. It was decided that any further elimination of items should be done on an empirical basis.

Discrimination analysis. In view of the large number of items retained as relevant it was decided to perfect the questionnaire as the initial stage of the study proper rather than to conduct a pilot study. Thus a seventy-item Organizational Structure Questionnaire was produced and submitted to, and collected from, the sample (infra pp. 90-91). This consisted of 360 elementary school teachers representing 15 schools from each of 3 different urban systems. From this original sample, 294 of the completed questionnaires, or 81.7 per cent, were retained. The remainder were not used. The retained questionnaires, representing fourteen schools from each of the three systems, were hand-scored and the data transferred to computer punch-cards. The forty-two schools were ranked on the basis of their total OSQ Score. These ranged from a high of 1803 to a low of 1498.

The next step was to eliminate those items which did not discriminate significantly between these high and low extremes. Therefore the responses of those teachers whose school scores were in the upper quartile of the overall

distribution were compared with the responses of teachers in the lower quartile. It should be noted that slightly less than the exact quartile was used. An exact quartile would have constituted 10.5 schools. As there were several tied scores at the tenth school level on the upper and lower quartiles, "quartiles" consisting of nine schools each were used. A one-tailed t-test*, with a critical ratio of 0.01, was used to exclude those items for which a statistically significant difference did not occur. This is summarized in Table I. As can be seen, thirty-five items discriminated at or beyond the 0.001 level and an additional eleven discriminated at or beyond the 0.01 level. However two of these items, numbers 16 and 39, had reversed means. Consequently they were deleted along with the following twenty-four items:

1, 4, 5, 6, 7, 9, 10, 11, 13, 15, 17, 19, 25, 34, 35,
36, 41, 48, 57, 58, 59, 62, 63, 65.

*See Ferguson (5:136-138). A program was selected which used Welch's (18:37-38) t-prime test. This modification is preferable to the ordinary t-test when one does not necessarily wish to assume that the population variances are equal.

TABLE I
SUMMARY OF t-PRIME DISCRIMINATION TEST ON
ORGANIZATIONAL STRUCTURE QUESTIONNAIRE ITEMS
(RESPONDENTS = 294)

Item	p	Item	p	Item	p	Item	p
1	NS	19	NS	37	**	55	*
2	*	20	*	38	**	56	*
3	**	21	**	39	*	57	NS
4	NS	22	**	40	*	58	NS
5	NS	23	**	41	NS	59	NS
6	NS	24	**	42	**	60	**
7	NS	25	NS	43	**	61	*
8	**	26	**	44	**	62	NS
9	NS	27	**	45	**	63	NS
10	NS	28	**	46	**	64	**
11	NS	29	**	47	**	65	NS
12	*	30	**	48	NS	66	**
13	NS	31	**	49	*	67	**
14	*	32	*	50	**	68	**
15	NS	33	**	51	**	69	**
16	**	34	NS	52	**	70	**
17	NS	35	NS	53	**		
18	**	36	NS	54	**		

** Significant at the .001 Level
 * Significant at the .01 Level

} p-one Tail

Correlational analysis. Pearson product-moment correlations (5:86-97), with all other items and with the individual's total score, were calculated for each of the seventy items. This is summarized in Table II. A two-tailed critical ratio of 0.01, for the "n" of the sample, set the criterion for significance at 0.148. On this basis, items number 21 and 43 were deleted.

Of the twenty-six items previously eliminated by the discrimination analysis, nineteen demonstrated significant correlations with the total score. These were re-examined. Three of them, numbers 19, 36 and 58, had discriminated at the 0.02 level. That is to say, they had barely missed inclusion at the .01 level and were, by the same token, significantly discriminatory at the 0.05 level. In order to check these items further another one-tailed Welch t-prime test, with a critical ratio set at 0.01, was conducted. However, this was done using the upper and lower halves rather than quartiles. The resulting probabilities for items 19, 36 and 58 were respectively: 0.001; 0.001; 0.006. Consequently they were retained. This meant that the final forty-five items used on the Organizational Structure Questionnaire to indicate the degree of bureaucratization observed to exist in a school were:

2, 3, 8, 12, 14, 18, 19, 20, 22, 23, 24, 26, 27, 28,
29, 30, 31, 32, 33, 36, 37, 38, 40, 42, 44, 45, 46, 47,

TABLE II
SUMMARY OF PEARSON PRODUCT-MOMENT CORRELATIONS OF
ORGANIZATIONAL STRUCTURE QUESTIONNAIRE ITEMS WITH
TOTAL SCORES
(RESPONDENTS = 294)

Item	r	Item	r	Item	r	Item	r
1	0.20	19	0.25	37	0.40	55	0.33
2	0.19	20	0.40	38	0.34	56	0.40
3	0.29	21	0.10*	39	-0.03*	57	0.08*
4	0.10*	22	0.38	40	0.23	58	0.27
5	0.26	23	0.40	41	0.17	59	0.40
6	0.00*	24	0.41	42	0.35	60	0.40
7	0.27	25	0.28	43	0.10*	61	0.40
8	0.49	26	0.40	44	0.32	62	0.17
9	0.30	27	0.28	45	0.54	63	0.30
10	0.29	28	0.26	46	0.36	64	0.22
11	0.18	29	0.47	47	0.35	65	0.31
12	0.34	30	0.42	48	0.07*	66	0.34
13	0.26	31	0.48	49	0.29	67	0.46
14	0.31	32	0.18	50	0.40	68	0.49
15	0.28	33	0.20	51	0.42	69	0.29
16	-0.05*	34	0.34	52	0.59	70	0.53
17	0.15*	35	0.25	53	0.29		
18	0.19	36	0.38	54	0.42		

*NOT Significant at the .01 Level

49, 50, 51, 52, 53, 54, 55, 56, 58, 60, 61, 64, 66, 67, 68, 69, 70*.

Of these there were five items, namely 2, 18, 33, 38, and 53, which were "reverse-score" items. A five-point Likert response scale was used with each item. These were: Always True (A); Frequently True (F); Occasionally True (O); Seldom True (S); Never True (N). With the majority of items this represented a 5-4-3-2-1 response range. However, the five "reverse-score" items were scored 1-2-3-4-5.

Verification. In order to recheck the effectiveness of the above-detailed discrimination and correlation analyses, further tests were run. The 294 questionnaires were rescored on the basis of the forty-five selected items. Schools now ranged from a high of 1264 to a low of 933. Pearson product-moment correlations and t-prime tests, using 0.01 level critical criteria as before, were employed. All correlations and degrees of discrimination remained exactly as in the initial tests.

Factor analysis. A number of Varimax rotation (9: 301-308) factor analyses were applied to the forty-five selected items in order to determine if stable clusterings of items, indicative of possible sub-scales, occurred. The

*A Spearman-Brown split-half reliability coefficient (5:280-281) of 0.89 was obtained on these forty-five items.

number of factors involved ranged from fifteen to two. That is, a fifteen-factor arrangement arbitrarily was selected as the starting point and then fewer and fewer factors were called for until the two-factor stage was reached. At each step the clusterings of items were examined to determine the extent of psychological meaning and to determine if items were grouping and regrouping in a predictable manner. A five-factor arrangement was the only one which provided some psychological meaning and also retained all of the items. This is illustrated in Table III.

Two conclusions were forthcoming. Firstly, each of five "factors" made psychological sense only when interpreted in the light of hierarchical authority. That is, all the items in each clustering were concerned with various aspects of control, decision-making and enforcement of rules and procedures. Secondly, the considerable number of substantial "secondary" loadings indicated that the "factors" were inextricably interwoven. This was also indicated by the unpredictable regrouping of items as different sets of factors were called for. An "oblique" Promax rotation (9: 261-288, 309-344) was conducted on the five-factor model in a final attempt at breaking down the inter-relatedness. This was necessary to ensure that if discrete sub-scales existed they were taken into proper account. The number of substantial secondary loadings remained essentially the same.

TABLE III
 VARIMAX ROTATION FIVE FACTOR ANALYSIS OF
 ORGANIZATIONAL STRUCTURE QUESTIONNAIRE ITEMS

Items	Communi- alities	I	II	III	IV	V
2	0.53	-0.04	0.12	0.30	0.20	-0.62
3	0.38	0.28	-0.04	0.55	-0.05	0.01
8	0.44	0.21	0.18	0.60	0.06	-0.09
12	0.32	0.14	0.06	0.53	0.11	0.02
14	0.39	0.32	0.04	0.50	-0.17	0.08
18	0.25	0.29	-0.08	0.16	0.32	-0.18
19	0.24	0.19	0.09	0.24	-0.17	0.33
20	0.40	0.36	0.17	0.34	-0.20	0.29
22	0.36	0.42	-0.00	0.40	0.17	0.05
23	0.58	-0.05	0.36	0.13	0.66	0.04
24	0.29	0.01	0.38	0.32	0.21	0.03
26	0.32	0.52	0.13	0.17	0.02	-0.01
27	0.40	0.48	-0.14	0.26	0.09	0.27
28	0.56	-0.10	0.18	0.12	0.71	-0.03
29	0.36	0.32	0.48	0.11	0.10	-0.03
30	0.26	0.27	0.20	0.30	-0.03	0.25
31	0.39	0.32	0.51	0.02	0.16	0.08
32	0.19	0.08	0.14	0.04	0.41	-0.01
33	0.51	-0.04	0.09	-0.01	0.71	-0.03
36	0.36	-0.06	0.54	0.23	-0.11	-0.03

TABLE III (continued)

Items	Communi- alities	I	II	III	IV	V
37	0.37	0.21	0.32	0.45	-0.16	-0.00
38	0.43	0.10	0.06	0.15	0.62	-0.10
40	0.30	0.48	-0.00	0.26	-0.02	-0.00
42	0.28	0.26	0.45	-0.06	0.07	-0.05
44	0.34	0.46	-0.01	0.13	0.32	0.06
45	0.46	0.56	0.28	0.18	0.20	0.04
46	0.47	0.66	0.05	0.12	0.04	0.13
47	0.45	0.64	0.09	0.01	0.02	0.17
49	0.43	0.58	0.22	0.06	-0.21	-0.00
50	0.47	0.60	0.25	0.06	-0.07	-0.21
51	0.48	0.35	0.55	-0.16	0.09	-0.11
52	0.59	0.31	0.66	0.04	0.24	-0.07
53	0.61	0.05	0.20	0.34	0.14	-0.66
54	0.56	0.03	0.48	-0.02	0.57	0.06
55	0.27	0.21	0.25	0.16	0.10	0.35
56	0.52	-0.03	0.65	-0.03	0.27	0.15
58	0.26	-0.19	0.26	0.32	0.23	0.05
60	0.34	0.08	0.11	0.40	0.18	0.36
61	0.37	-0.08	0.40	0.40	0.20	-0.06
64	0.24	0.09	-0.01	0.43	0.23	-0.03
66	0.38	0.13	0.03	0.57	0.20	-0.04
67	0.44	0.49	0.33	0.24	-0.16	0.08
68	0.48	-0.06	0.59	0.29	0.21	0.08
69	0.36	0.01	0.13	0.35	0.13	0.45
70	0.43	0.27	0.45	0.23	0.23	0.21
Totals	17.84	4.54	4.19	3.79	3.45	1.87
Eigenvalues		8.35	3.81	2.24	1.77	1.67

This, when combined with the earlier evidence, confirmed the Organizational Structure Questionnaire as essentially uni-dimensional in nature with all items ultimately related to "Hierarchy of Authority."

Staff Organizational Structure Opinion Scale*

Introduction. In developing the earlier version of The School Organizational Inventory (11:48) MacKay also added six "global rating" items. These items were designed to determine the extent to which each teacher and principal involved considered each of the Inventory's six bureaucratic organizational structure dimensions as being desirable.

MacKay subsequently found that: within a particular school organization the teachers' observations with respect to the degree of bureaucratization were not related to their desire for bureaucratic characteristics (11:91); the teachers generally wanted more bureaucratization than they were getting (11:94). MacKay, however, went on to add the following caution (11:94):

One should be careful to note . . . that in no instance was the term "bureaucracy" used in any of the research instruments. Moreover, the items in the Organizational Inventory proper were designed to get at operational features of the organizational structure. In some cases, the items contained statements which

*See Appendix B. This questionnaire and the one given to the principals (infra p. 76) had scores based on the same selected forty-five items as the Organizational Structure Questionnaire.

might be unfavorably construed by the respondents (e.g. "red tape," "administrators stick to themselves," etc.).

On the other hand the six items which were designed to measure staff member attitudes toward bureaucracy as an ideal form, were couched in language which was substantially colorless, in the sense that no "negative" words were used.

In examining the "global rating" items*, the absence of negative words is indeed evident. In fact, as statements in favor of order as opposed to chaos, they might well be positive enough in character to prove difficult to object to. In any case, these desirability ratings led to contradictory results. MacKay (11:140) found no significant differences between principals and teachers with respect to a desire for bureaucratization. Robinson (12:154), on the other hand, found that teachers wanted significantly more bureaucratization, on every dimension except Hierarchical Authority and Technical Competence, than did principals. The reasons for this discrepancy in the findings of the two studies are unclear.

*These are items 49 to 54 on the School Organizational Inventory. See Appendix E.

Staff Organizational Structure Score. In view of the "global rating" problem, and in order to facilitate Benevento's technique* for measuring administrative communication, a multi-item desirability questionnaire was required. This requirement was easily met through very minor modifications of the Organizational Structure Questionnaire. That is to say, the seventy items asking teachers to observe what is were readily convertible into items asking teachers to state what should be.

A five-point Likert response scale was used. These were: Strongly Agree (SA); Agree (A); Indifferent (I); Disagree (D); Strongly Disagree (SD). As a middle term

*Benevento (3) developed his own "desirability" questionnaire to get at administrative communication. Whereas it was the intention of the present study to examine administrative communication with respect to organizational structure only, Benevento also attempted to analyze its relationship to: institutional relations with pupils; personal relations with pupils; personal relations with the staff and the staff's related obligations. What this present study has referred to as a Communication Rating Benevento (3:6) called "Communicative Reception"; what this present study has referred to as a Congruency Score Benevento (3:6) called "Communicative Consonance." After relating his own questionnaire to Halpin's LBDQ, Benevento (3:179) stated, "Inasmuch as eight separate relationships were studied, depth of investigation in each area of communication was necessarily curtailed." The present study, by restricting the examination to the relationships between organizational structure and administrative communication, hoped to avoid the problems encountered by Benevento as a consequence of having spread his "resources" a bit too thinly (i.e. much of the support for his hypotheses he had to find in sign "trends" as opposed to statistically significant results).

"Indifferent" was employed rather than the more commonly used "Undecided." This change was intended to encourage respondents to make a thoughtful decision rather than to skim through with a large number of "lazy" middle responses.

Thus the scoring procedure remained the same, on the same items, as for the Organizational Structure Questionnaire. The higher the score the more bureaucratization desired. The sum of all the teacher scores in any one school constituted the SOSS descriptive of that school.

Principal's Communication Rating. In addition to expressing their own opinions, as discussed above, teachers were asked to give their principal's probable opinion on each of the seventy items. In order to avoid confusion, teachers were asked to draw a diagonal line through their own opinions and circle that which they thought typified their principal's opinion. A complete answer for an item took the form of the following example:

~~SA~~ (A) I D SD

The scoring for the Staff Organizational Structure Score was concerned with the "lined" answers only. The scoring for the Principal's Communication Rating was based on the difference between the circled answer and the comparable answer circled by the principal on a similar questionnaire given to principals only. If the two circles coincided then the score was 5, if one answer apart then the score

was 4, and so on*. In the above example, if the principal had in fact also circled "A" his Communication Rating for that particular item would be 5. If, however, he had circled "SD" his Rating for that item would be 2. These scores, when totalled for all staff concerned provided the principal's Communication Rating.

Principal's Organizational Structure Opinion Scale**

Each principal received a questionnaire containing the same seventy "desirability" items and Likert response scale as the Staff Organizational Structure Opinion Scale. He circled the answer for each item which best fitted his opinion concerning the desirability of a bureaucratic organizational structure. His answers were scored as for the Organizational Structure Questionnaire and the Staff Organizational Structure Opinion Scale. This provided a Principal's Organizational Structure Score (supra p. 14).

*Although the technique used to determine the extent and effectiveness of administrative communication was the same as that used by Benevento, the scoring technique was reversed. Benevento gave a score of 0, rather than 5, for perfect agreement. This meant that the lower the score the more effective the communication. For the purposes of this study it was advantageous to reverse this procedure so that the higher the score the more effective the communication.

**See Appendix C.

These answers, when compared to the circled answers on the Staff Organizational Structure Opinion Scale, provided the Principal's Communication Rating. When compared to the Staff Organizational Structure Score (i.e. the "lined" answers on the Staff Organizational Structure Opinion Scale), they provided the school's Congruency Score (supra p. 14).

Principal's General Opinion Scale*

This scale, along with the Principal's Organizational Structure Opinion Scale, constituted the questionnaires submitted to all principals in the sample. It was the twenty-item Short-Form Dogmatism Scale developed by Troidahl and Powell (15) as a modification of Rokeach's original forty-item Dogmatism Scale (13:71-80). The title was changed to suggest "general opinions" in order to counter the possibility that principals might supply artificial answers as a consequence of negative connotations attached to the term "dogmatism." The dogmatism items were kept as a separate part of the questionnaire as opposed to interspersing them throughout the Principal's Organizational Structure Opinion Scale. This interspersion, intended better to disguise the purpose of the items, was used by Rokeach (13: 87) with respect to the Dogmatism and Opinionation Scales

*See Appendix D.

and was quite successfully used in a recent study by Hamilton (8:91) with respect to the Dogmatism and Ethnocentrism Scales. However, the seventy items on the Principal's Organizational Structure Opinion Scale and the twenty items on the Short-Form Dogmatism Scale were sufficiently dissimilar as to thwart any such method of disguise.

The Dogmatism Scale, as described by Rokeach (13:71-91), went through a number of revisions.

These revisions were made in order to increase reliability and also to reflect the many modifications, elaborations and refinements that took place in our thinking over several years (13:89).

The original scale, Form A, was made up of fifty-seven items and had a reliability of .70. Form B eliminated the fourteen least successful items but the reliability, if anything, declined. Consequently Form D had thirty additional new items making a total of sixty-six. Its reliability was .91. Yet another item analysis reduced the number of items to forty. This scale, Form E, proved to have reliability coefficients ranging from .68 to .93 over a series of studies. Validation studies by Zagona and Zurcher (19) and Haiman and Duns (6) found that observed behavior conformed to that predicted by the Dogmatism Scale scores.

Troldahl and Powell (15) developed a twenty-item version by selecting the twenty most discriminating items out of Form E's original forty. This "Short-Form" was

found to have, on the basis of two separate field studies, correlations of .95 and .94 with the Form E Scale. Its split-half reliability, along with scales of other lengths for purposes of comparison, was calculated to be (15:214):

40 items	.84
20 items	.79
15 items	.73
10 items	.66

Troldahl and Powell concluded, therefore, that the twenty-item version was advantageous not only because of its shorter length but also because it was a good predictor of what one would obtain using the forty-item version. In addition, it possessed a reliability sufficient for research purposes.

Korn and Giddan (10), in an investigation of the scoring methods and construct validity of the Dogmatism Scale, demonstrated that it was the frequency of the positive responses which accounted for the largest percentage of variation in the Dogmatism Scale score. Consequently they recommended a simplified method of scoring*.

*Rokeach (13:88) used the following method: "... subjects indicate disagreement or agreement with each item on a scale ranging from -3 to +3, with the 0 point excluded in order to force responses toward disagreement or agreement. This scale is subsequently converted, for scoring purposes, to a 1-to-7 scale by adding a constant of 4 to each item score. The total score is the sum of scores obtained on all items in the test."

Hamilton (8:91) acted upon this recommendation and, in his study, simplified the responding and scoring systems, bringing them into line with the Likert-style response used on the rest of his questionnaire.

Teachers were asked to indicate whether they strongly agreed, agreed, disagreed, or strongly disagreed with each item.

For all statements, agreement was scored as "closed-minded" and disagreement as "open-minded," the responses being given the following weights: SA=5; A=4; D=2; SD=1. Possible scores could range from a minimum of 20 (open-minded) to a maximum of 100 (closed-minded).

This form of responding and scoring was used in the present study for two reasons. Firstly, with only the dropping of the "Indifferent" category, it made the response scale identical with that used in the Principal's Organizational Structure Opinion Scale. Secondly, the reliability of the twenty-item version was in no way impaired. Hamilton (8:121) found a split-half reliability coefficient of .81 as compared to the .79 originally calculated by Trolldahl and Powell.

III. METHODOLOGY

Procedure

Permission to approach selected schools was requested of the superintendent of schools of each of the three urban systems concerned. After this permission had been obtained the principals and teachers of the schools in question were

asked to co-operate in the study. These contacts were made by mail, telephone and/or in person depending upon the location of the system and the schools therein. In two of the systems all of the "first choice" schools agreed to participate. In the third system, where many of the schools were already involved in a number of research projects, it was necessary to contact an additional three schools.

The necessary questionnaires were delivered, by the investigator personally, to each participating school. Thus, in each school, all personnel sampled received (1) instructions pertaining to the accurate completion of the relevant instrument(s), and (2) an envelope in which to seal the instruments upon completion, thus maintaining individual anonymity. Each principal received (1) a Principal's Organizational Structure Opinion Scale, and (2) a Principal's General Opinion Scale. In each school one sampling of teachers received the Organizational Structure Questionnaire; an additional sampling of teachers in each school received the Staff Organizational Structure Opinion Scale.

In each school a liaison person, normally the principal, agreed to collect the sealed envelopes and hold them for collection by the investigator. In order to ensure maximum returns, the investigator personally collected the envelopes from each liaison person. In two of the urban

systems the distribution and collection processes were completed in approximately one week. For example, if the instruments were distributed, in person, to the schools on the Monday and Tuesday then they usually could be collected, by appointment, on the Thursday and Friday of the same week. This procedure was more involved than using the mails. However, in view of the relatively small number of schools to be sampled in each urban system, maximum returns were essential. In the third urban school system the distribution method was identical. The collection method, however, was slightly different. The principal in each school mailed the completed questionnaires to a liaison person at their School Board's offices. This liaison person, after all schools had been heard from, sent the instruments to the investigator. This "collection" variation took only slightly longer and, as with the other two urban systems, resulted in virtually 100 per cent returns.

The Initial Sample

Elementary schools, as nearly similar in size and organization as possible, were randomly sampled from each of three urban school systems. Each of these systems was from a different Western Canadian province. Elementary schools were selected, as opposed to various types of secondary schools, in view of their greater degree of similarity from

system to system and province to province. The nature of the differences in grade arrangements from province to province (e.g. 7-2-3, 6-3-3, 8-4, etc.) dictated against going beyond the elementary school level. Thus schools containing any grades other than elementary were not included in the sample.

The necessary stratification of the over-all sample was facilitated by comparisons of the 1966-67 school lists for each city. These comparisons indicated that: system "A" had eight-five completely elementary schools consisting in total, of more than 46,000 pupils and over 1600 teachers; system "B" had seventy-one completely elementary schools consisting, in total, of an estimated 34,000 pupils and some 1400 teachers; system "C," the smallest of the three, had 38 completely elementary schools with, in total, over 500 teachers and approximately 14,000 pupils.

The statistical requirement of two sufficiently sized independent samples of teachers from each school placed the lower limit of school size (based on the number of regular staff) at sixteen teachers. As school system "A" had a number of very large elementary schools, compared to the other two systems, the upper limit of school size had to be based on the larger schools in system "B" and "C." On this basis the most appropriate upper limit was a staff of twenty-seven teachers. In each of the three systems there

were at least eighteen schools which fell within this chosen range of 16 to 27 full-time teachers of regular (as opposed to special) classes. Fifteen schools were randomly selected from each of these stratified samples. In summary, the system by system characteristics of the forty-five schools were as follows:

1. School System A:
 - (a) Range of school sizes = 17-26 teachers
 - (b) Mean school size = 19.5 teachers
2. School System B:
 - (a) Range of school sizes = 16-24 teachers
 - (b) Mean school size = 19.4 teachers
3. School System C:
 - (a) Range of school sizes = 17-25 teachers
 - (b) Mean school size = 19.6 teachers

This sample primarily was intended to be analyzed as a totality rather than on a system basis. However, if the a priori analyses indicated the possibility that the supra-system environment of the schools was having some influence upon any of the scores then this sample was also amenable to a posteriori analyses on a system basis.

The attempt to control size through the sampling technique was done for two reasons. Firstly (11:63),
 ". . . one of the factors traditionally regarded as influencing bureaucracies is the size of the organization. . . ." Both MacKay (11:85-88) and Anderson (1:62) found a relationship, in their samples, between size and certain

aspects of bureaucratization. Thus, in order to concentrate on the relationship between communication and bureaucratization, the size factor was controlled as far as was reasonable. Secondly, size may also be related to the effectiveness of communication. Both Barnard (2:106) and Caplow (4) have made mention of the effects of size, as a limiting factor, upon the methods and channels of communication used by organizations. Simon (14:158) examined size from the perspective of the effects upon the frequency of communication as it is determined by the physical propinquity of the participants. Consequently, in order better to determine the relationships between the effectiveness of communication and certain other factors (e.g. the degree of dogmatism of the principal) the potential effects of size were held as constant as possible.

Schools of sufficient size, with respect to the number of teachers, were needed in order to sample some sixteen teachers per school. This number permitted two independent samples, of eight teachers each, in each school. These samples were independent (5:134) in the sense that, aside from coming from the same school, teachers were not deliberately paired with one another. Nor were they dependent in the sense that the same group of subjects was to complete both the questionnaire which asked for a description of "what is" and the questionnaire which asked

for opinions on "what should be." In each school one sample completed the Organizational Structure Questionnaire while the other completed the Staff Organizational Structure Opinion Scale*. The reasons for using these independent samples were as follows:

1. The questionnaire would have been over-long, and probably irritatingly repetitious, if each teacher had been instructed to give the seventy answers required on the Organizational Structure Questionnaire in addition to the 140 (i.e. two answers on each item) required on the Staff Organizational Structure Opinion Scale.
2. MacKay found (11:91), using the School Organizational Inventory's global ratings of desirability, that no relationship existed between the staff members' observations of bureaucratization and their desire for bureaucratic characteristics. However, as previously stated (supra p. 74), these ratings resulted in somewhat contradictory results between MacKay's study and Robinson's study. There was no lo-

*Table IV summarizes the results of the t-prime and chi-square tests used to determine if significant differences existed between any of the characteristic variables held in common by the two independent samples. As can be seen, NO significant differences occurred.

TABLE IV

A SUMMARY OF RESULTS OF t-PRIME AND CHI-SQUARE TESTS
 USED TO DETERMINE IF DIFFERENCES IN CHARACTERISTICS EXISTED
 BETWEEN THE TWO TEACHER SAMPLES
 (NUMBER OF RESPONDENTS IN EACH SAMPLE = 294)

Variable Number	Description	Probability of Difference (p two-tail)	
		t-prime	Chi-square
1*	Sex	0.61	0.93
2*	Marital Status	0.73	0.79
3	Age	0.13	
4	Years of Teaching Experience	0.20	
5	Years of Academic Preparation	0.23	
6*	Degree (Yes or No)	0.43	0.78
7	Grade(s) Taught	0.10	
8*	Subject Specialty (Yes or No)	0.27	0.47
9	Years in This School	0.30	
10	Years With This Principal	0.60	
11*	Classroom in Same Building as Office (Yes or No)	0.14	0.46
12*	Classroom on Same Floor as Office (Yes or No)	0.19	0.14
13	Relative Distance of Classroom from Office	0.21	

*As each of these variables was composed of dichotomous data, chi-square tests (5:157-172) were also used in order to ensure the accurate assessment of possible differences.

gical or statistical guarantee, therefore, that the degree of bureaucratization observed would be as "realistic" (i.e. not substantially affected by desirability) when a multi-item desirability questionnaire was used--especially when the is items and the should be items were almost identical in wording. The use of independent samples was designed to counter the possibility of confounding interaction.

The Definitive Sample

Upon the return of completed instruments to the investigator they were checked, on a school by school basis, for possible erratum.

Despite complete teacher returns it was found necessary to delete three schools from the sample, one from each system, for the following reasons: one principal left every reverse page, on his Principal's Organizational Structure Opinion Scale, blank; another principal inadvertently gave his Principal's Organizational Structure Opinion Scale to a teacher for completion; a third principal neglected to fill in his Background Data sheet.

In addition, it was found that in two additional schools in each system there was a shortage of, or error or

omission in, either one Organizational Structure Questionnaire or one Staff Organizational Structure Opinion Scale. Had these schools been eliminated, as a consequence, it would have left twelve schools per system and a total of 576 teacher respondents. It was decided, in order to maintain equal "n's" and maximum response, randomly to eliminate (prior to scoring) one OSQ and one SOSOS from each of the other schools. This left fourteen schools per system and a total of 588 teacher respondents--fourteen staff members in each school. Even after the deliberate exclusion of some 120 entirely correct and complete questionnaires, this represented 81.7 per cent of the initial sample selected.

The total experimental sample, therefore, was forty-two schools.

V. ANALYSIS OF THE DATA

The relevant data from scored questionnaires were placed on IBM cards. The following decks of cards resulted:

1. The item by item responses, and totals, on the Organizational Structure Questionnaire.
2. The "Background Data" of the respondents on the Organizational Structure Questionnaire; and each of the six "major" school scores--the Communication Rating, the OSQ Score, the Dogmatism Rating, the POSS, the SOSS, and the Cong-

ruency Score.

3. The "Background Data" of the respondents on the Staff Organizational Structure Opinion Scale; and each of the six major scores.
4. The "Background Data" (i.e. school and principal characteristics) of each of the respondents on the Principal's Organizational Structure Opinion Scale; and each of the six major scores.

Existing computer programs* were used in the analysis of this data. Analyses were as follows:

1. Pearson product-moment correlations, t-prime tests and factor analyses applied to the Organizational Structure Questionnaire response scores and totals (supra pp. 64-72).
2. Pearson product-moment correlations, point biserial correlations, phi coefficients (as applicable) and t-prime tests on (a) all teacher and principal variables; (b) all data comparing the characteristics of the two independent samples; (c) all data relevant to comparisons among the three urban systems.

*Modifications, where and when necessary, were made by James Carlson, formerly of the Division of Educational Research Services, University of Alberta, and now of the Program of Studies of Educational Research, the University of Pittsburgh.

3. One-way analyses of variance across the forty-two schools on (a) the Communication Rating; (b) the OSQ Score; (c) the Dogmatism Rating; (d) the POSS; (e) the SOSS; (f) the Congruency Score. Schools were grouped both according to scores and according to systems.
4. Step-wise regression analyses*, using multiple correlation coefficients and Pearson product-moment correlations, with principal, school and teacher characteristics acting as the predictor variables and each of the following major scores, in turn, acting as the criterion measure: the Communication Rating; the OSQ Score; the Dogmatism Rating.

V. SUMMARY

This chapter reviewed the research design and procedures used in the study. The review included: delineation

*The usefulness of this form of analysis has been described by MacKay (11:145-146). "Such an analysis permits one to determine the relative importance of each predictor variable in relation to the criterion measure. Since the step-wise feature of the analysis makes it possible to find the unique variance relationship between a predictor and the criterion, a fairly clear pattern of relationships can be established. Moreover, it is possible to determine the statistical significance of each of these unique relationships, and hence make statements regarding to probability of error."

of the required data; a discussion of the selection, composition and development of the instrumentation; an outline of the methodology used to collect the necessary data; a description of the experimental sample; a summary of the statistical procedures used to analyze the collected data. A summary of the descriptive statistics of the major variables in the study is shown in Table V.

Variable	Mean	Standard Deviation	N
Age	34.5	10.5	100
Sex	50.0	5.0	100
Education	12.5	1.5	100
Income	15.0	2.0	100
Occupation	10.0	1.0	100
Marital Status	50.0	5.0	100
Religious Belief	50.0	5.0	100
Political Affiliation	50.0	5.0	100

TABLE V

A SUMMARY OF THE DESCRIPTIVE STATISTICS OF THE
SIX MAJOR VARIABLES INVOLVED IN THE STUDY

(SCHOOLS = 42; PRINCIPALS = 42; TEACHERS = 294 = 7 PER SCHOOL)

Variable	Range	Means	S.D.
Communication Rating	1153-1377	1278.10	56.68
OSQ Score	933-1264	1061.45	87.39
Dogmatism Rating	32-65	46.62	6.83
POSS	105-175	142.81	15.78
SOSS	877-1084	991.40	49.59
Congruency Score	1142-1373	1266.52	47.32

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CHAPTER IV

RESULTS, ANALYSIS AND DISCUSSION: PRINCIPAL'S COMMUNICATION RATING

I. INTRODUCTION

This study's specific primary problem was an investigation of the relationships between the observable organizational structure of a sample of urban elementary schools and the principal-to-staff administrative communication concerning a desirable organizational structure. In addition, analyses were made of the relationships existing among: the principals' and staffs' desire for a bureaucratic organizational structure; the degree of congruency within a school on this matter; the degree of administrative communication; the observable organizational structure. Thirdly, relevant principal, staff and school demographic characteristics were related to the communication and organizational structure variables. Lastly, the characteristics and scores of the three urban systems were analyzed to determine and discuss significant differences and similarities. Although not initially intended, this separation of the sample into the component systems was carried out as a consequence of the system effects which seemed to be appearing during the analysis of the Organizational Structure Scores (infra pp. 187-88). Therefore it was thought

advisable to carry out a posteriori investigations, on a system basis, of the Principal's Communication Rating, the OSQ Score and the Principal's Dogmatism Rating.

Chapter IV concentrates upon reporting, analyzing and discussing the results concerning administrative communication (the Principal's Communication Rating). Chapter V is similarly devoted to the observed organizational structure (School's Organizational Structure Questionnaire Score). Chapter VI examines those aspects of the Principal's Dogmatism Rating not covered in earlier chapters.

II. PRELIMINARY ANALYSIS OF THE PRINCIPAL'S COMMUNICATION RATING

Findings

Prior to investigating any of the stated sub-problems, an analysis was made of the extent to which the forty-two sampled principals differed in their Communication Ratings. An analysis of variance of all Communication Ratings, with schools grouped on the basis of this score, revealed that principals differed significantly in their Communication Ratings (Table VI) well beyond the 0.01 level. This was further revealed and confirmed by an examination of the t-prime one-tail probabilities of significant differences among the ordered means of the three groups (Table VII).

TABLE VI
ANALYSIS OF VARIANCE OF THE PRINCIPAL'S COMMUNICATION
RATING WITH SCHOOLS GROUPED ON THE BASIS OF THIS SCORE
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	52271.50	2	67.05	0.00
Within	779.62	39		

TABLE VII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE PRINCIPAL'S COMMUNICATION RATING;
 SCHOOLS GROUPED ON THE BASIS OF THIS SCORE
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means		t-Prime One-Tail Probabilities		
Group 1(Upper Group)	= 1335.29	1	2	3
Group 2(Middle Group)	= 1285.29	3 0.00	0.00	-
		2 0.00	-	
Group 3(Lower Group)	= 1213.71	1 -		

Discussion

These results indicated that the instrumentation and technique (supra pp. 75-78) used in this study were able to determine if differences in the degree of administrative communication occur among schools. This method for obtaining empirical evidence of the extent of administrative communication in a specific area in an organizational context may hold some promise with respect to the research problem which apparently has thwarted investigators for some time (supra p. 6, pp. 19-20).

III. ANALYSIS OF THE PRINCIPAL'S COMMUNICATION RATING ON THE BASIS OF PRINCIPAL-SCHOOL SCORES AND CHARACTERISTICS

Findings With Respect to Sub-Problem 1.0

Sub-Problem 1.0, this study's first problem to be investigated, asked the question:

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the degree of bureaucratization which is observed in the school?

Proceeding from this question was Hypothesis 1.1 which stated that a direct relationship would exist between the Principal's Communication Rating and the school's Organizational Structure Questionnaire Score. Product-moment

correlations* of principal and school scores and characteristics with the Principal's Communication Rating (Table VIII) indicated that this hypothesis was rejected (see variable 22, Table VIII). This rejection was upheld by: an analysis of variance of the schools' Organizational Structure Questionnaire Scores when these schools were grouped on the basis of their principals' Communication Ratings (Table IX); an examination of the t-prime one-tail probabilities of significant differences among the ordered means on the OSQ Scores when schools were grouped on the basis of their principals' Communication Ratings (Table X).

Discussion

It would be premature on the basis of the findings of this one study, especially in view of the relatively untested instruments, to attempt seriously to question the existence of a functional relationship between the structure of a formal organization, as delineated by the bureaucratic authority structure, and the administrative communication which occurs therein. This study was, to a large extent, exploratory. The dearth of previous empirical analyses of

*Of correlational relationships Ferguson stated (5: 108-109): "The existence of a correlation between two variables is indicative of a functional relationship, but does not necessarily imply a causal relationship. Whether a functional relationship can be regarded as a causal relationship is a matter of interpretation."

TABLE VIII

PRODUCT-MOMENT CORRELATIONS OF PRINCIPAL-SCHOOL SCORES AND
 CHARACTERISTICS WITH PRINCIPAL'S COMMUNICATION RATINGS
 (SCHOOLS = 42; PRINCIPALS = 42)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
1 ^a	Sex		0.00
2 ^a	Marital Status		-0.15
3	Age	-0.11	
4	Years of Teaching Experience	-0.01	
5	Years of Academic Preparation	-0.02	
6 ^a	Graduate Degree (Yes or No)		-0.18
7	Years of Administra- tive Experience	-0.23	
8	Years in Present Position	-0.24	
9	No. of Teaching Periods Per Week	-0.02	
10	Dogmatism Rating	0.05	
11	POSS	0.37*	
12	Major Medium of Communication	-0.06	
13	No. of Floors in the School	-0.17	
14	No. of Classrooms	-0.11	

TABLE VIII (continued)

Variable Number	Description	Product-Moment r	Correlation r _{pbi}
15	Number of Classrooms on Office Floor	0.17	
16	Number of Pupils	0.11	
17	Number of Staff	-0.08	
18	Number of Vice- Principals	0.19	
19	Number of Full-time Office Help	0.13	
20	Number of Part-time Office Help	0.01	
21	Socio-Economic Status of Area	0.15	
22	School's OSQ Score	-0.01	

^a As these variables were composed of dichotomous data, their product-moment correlations with the Communication Rating were point-biserial rather than Pearson "r." The conversion formula (5:202) confirmed the 0.05 criterion for significance at 0.304, as listed in Ferguson's Table F (5:315).

*r_{.01} (df=40), one-tail $\geq$ 0.358

TABLE IX

ANALYSIS OF VARIANCE OF THE SCHOOL'S ORGANIZATIONAL STRUCTURE
QUESTIONNAIRE SCORE WITH SCHOOLS GROUPED ON THE BASIS OF THE
PRINCIPAL'S COMMUNICATION RATING
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	8447.50	2	1.08	0.35
Within	7790.72	39		

TABLE X

SUMMARY OF THE PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE SCHOOL'S OSQ SCORE WITH SCHOOLS GROUPED
 ON THE BASIS OF THE PRINCIPAL'S COMMUNICATION RATING
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime One-Tail Probabilities		
Group 1 (Upper Group) = 1084.93	1	3	2
	2	0.07	0.18
Group 3 (Lower Group) = 1063.50	3	0.26	-
	1	-	
Group 2 (Middle Group) = 1035.93			

the nature and effects of administrative communication within an organization meant that this study, of necessity, had to examine this communication on a relatively narrow scale. At the moment, therefore, one may only speculate as to the causes of the lack of expected positive correlation between administrative communication, of a certain type, and organizational structure. The technique used in this study to examine communication within the organizational context demonstrated its ability to determine differences in the extent to which administrative communication, in a specific area, has occurred. However, Hopkins (8:82-98), in his discussion of the convergence of the respective theories of Weber and Barnard on the nature of bureaucratized systems of authority, stated (8:94) that ". . . Barnard describes primarily the process* through which such a system operates, and Weber, primarily its structure." This suggests the possibility that the Communication Rating did not really tap the composition of this process but rather the extent of its existence. Consequently, a functional relationship between process and structure has yet to be empirically demonstrated.

This study further attempted, by way of a question concerning the principal's main medium of communication (see variable 12, Table VIII, page 103), to determine if

*Italics added.

there was a relationship between the extent of administrative communication and particular media (i.e. face-to-face meetings, written messages, and so on). This attempt also failed to find a significant relationship and, to the extent that "media" touched upon process, leaves some doubts as to the manner in which this aspect of Barnard's theoretical construct might be measured empirically.

Findings With Respect to Sub-Problem 2.0

Sub-Problem 2.0 asked:

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the nature and direction of these attitudes and opinions?

Flowing from this question was Hypothesis 2.1 which stated that a direct relationship would exist between the Principal's Communication Rating and the Principal's Organizational Structure Score. The Communication Rating provided the empirical score representing the extent to which administrative communication had occurred; the POSS measured the nature and direction of the principal's opinions and attitudes concerning a desirable organizational structure.

A product-moment correlation (see variable 11, Table VIII, page 103), significant beyond the 0.01 level, supported this hypothesis. Further support and confirmation came from an examination of the t-prime one-tail probabil-

ities among the ordered means on the POSS'es when schools were grouped on the basis of the Communication Ratings (Table XII). It should be noted that this investigation revealed a skewed distribution*. The Upper Group had scores significantly greater than the Middle and Lower Groups (at the 0.04 and 0.02 levels, respectively). However these latter two groups showed no significant difference. It is this distribution which might account for the lack of overall significance on the analysis of variance of the POSS'es with the schools grouped on the basis of the Communication Ratings (Table XI).

Discussion

This finding helps to pull together some of the literature (supra pp. 21-25, 42-43) and to vindicate some of the speculation based thereon. From this it would seem that the principal who considers a bureaucratic organizational structure to be desirable communicates his opinions on this matter to a significantly greater extent than a principal who, by comparison, considers a bureaucratic structure to be less desirable. Perhaps this reflects the occurrence of both "intentional" and "non-intentional"

*A test for trend (15:70-74) revealed this to be an entirely linear relationship.

TABLE XI
ANALYSIS OF VARIANCE OF THE PRINCIPAL'S ORGANIZATIONAL
STRUCTURE SCORE WITH SCHOOLS GROUPED ON THE BASIS OF
THE PRINCIPAL'S COMMUNICATION RATING
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	577.45	2	2.42	0.10
Within	238.66	39		

TABLE XII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE POSS WITH SCHOOLS GROUPED ON THE
 BASIS OF THE PRINCIPAL'S COMMUNICATION RATING
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime One-Tail Probabilities		
Group 1(Upper Group) = 149.79	1	2	3
Group 2(Middle Group)= 141.50	3 0.02	0.25	-
	2 0.04	-	
Group 3(Lower Group) = 137.14	1 -		

communication (supra pp. 10-11). The principal with the greater POSS probably gets the "hierarchical authority" message across as much by his actions as by his words.

Findings With Respect to Sub-Problem 5.0

The purpose of Sub-Problem 5.0 was to investigate the question:

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the principal's degree of dogmatism?

It was hypothesized, by Hypothesis 5.1, that there would be a direct relationship between the Principal's Communication Rating and the Principal's Dogmatism Rating. This latter score was provided by the principal's responses on the Principal's General Opinion Scale. This scale was the twenty-item Short Form Dogmatism Scale (supra pp. 78-81).

A product-moment correlation (see variable 10, Table VIII, page 103) indicated that this hypothesis was rejected. This was corroborated by: an analysis of variance of the Principal's Dogmatism Rating when the schools were grouped on the basis of the Communication Ratings (Table XIII); an examination of the t-prime one-tail probabilities among the ordered means on the Dogmatism Ratings when schools were grouped on the basis of the Communication Ratings (Table XIV).

TABLE XIII

ANALYSIS OF VARIANCE OF THE PRINCIPAL'S DOGMATISM RATING
WITH SCHOOLS GROUPED ON THE BASIS OF THE
PRINCIPAL'S COMMUNICATION RATING
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	8.67	2	0.17	0.84
Within	49.76	39		

TABLE XIV

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE PRINCIPAL'S DOGMATISM RATING WITH
 SCHOOLS GROUPED ON THE BASIS OF THE
 PRINCIPAL'S COMMUNICATION RATING
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime One-Tail Probabilities		
Group 3(Lower Group) = 47.14	3	1	2
Group 1(Upper Group) = 47.00	2	0.30	0.29
	1	0.48	-
Group 2(Middle Group)= 45.71	3	-	

Discussion

In the light of the new instruments being used in this study to investigate administrative communication and organizational structure, it was thought advisable to include a previously tested instrument (supra pp. 78-81) that appeared to be related to both communication and organizational structure (supra pp. 40-43). Without exception, the results of this inclusion were disappointing (see Chapter V, pp. 152, 175-6, and Chapter VI, pp. 210-217). This failure to find a functional relationship between the principal's degree of dogmatism and the extent to which he had communicated to his staff his own opinions regarding a desirable organizational structure, is not immediately explainable*. However, one possibility is discernible from the literature. Rokeach (10:57-58), in defining the extent to which a person's total belief system is open or closed, emphasized:

. . . the extent to which the person can receive**, evaluate and act on relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation arising from within the person or from the outside.

*The problem of explanation is made more difficult by the fact that a step-wise regression (see Table XV, page 118) showed the Dogmatism Rating to be a significant predictor with respect to the Communication Rating.

**Italics added. Haiman and Duns' (7) validation study also emphasized the reception aspect of communication.

The Communication Rating dealt exclusively with the principal's transmission of information. Thus it might have been more appropriate to have administered the Dogmatism Scale to the teachers who were receiving the communication.

One other possible explanation might reside in the sample. The sample of principals was not an entirely random sampling from the population of school principals. It included elementary school principals only and then just those principals whose schools fell within a definite and restricted range with respect to the number of staff members. Consequently, the lack of a correlational relationship might have been due to statistical characteristics which reflected the homogeneity of the sample. (The characteristics of the dogmatism scores of the forty-two principals were presented earlier in Table V, page 94).

As a consequence of the rejection of Hypothesis 5.1, Hypothesis 5.2 was untestable. This hypothesis was predicated upon the prior acceptance of both Hypothesis 2.1 (supra pp. 108-112) and Hypothesis 5.2. Hypothesis 2.1, which was supported by the evidence, stated that there would be a direct relationship between the Communication Rating and the Principal's Organizational Structure Score (POSS). If a direct relationship had also been found to exist between the Communication Rating and the Dogmatism Rating, then Hypothesis 5.2 would have examined the possibility of a

direct relationship between the POSS and the Dogmatism Rating.

Findings With Respect to Principal-School Demographic Characteristics

A step-wise regression analysis program was used to determine the percentage of Communication Rating variance accounted for by each of the principal-school scores and characteristics (Table XV). The step-wise regression analysis program used in this study included a t-test of the level of significance of the variance accounted for by each variable. Therefore, with two exceptions, only those variables that made significant contributions were included in Table XV as predictors. "Number of Staff" and "Principal's Graduate Degree" both came very close to significance and, at the same time accounted for more of the total variance than any of the four significant predictors that followed them. Thus, for the purposes of Table XV, these two were retained as "significant" predictors although they were not included in the discussion as such.

Discussion

Apart from the hypotheses already discussed--those concerning relationships between the Communication Rating and, in turn, the School's OSQ Score, the POSS, and the

TABLE XV

VARIANCE IN PRINCIPAL'S COMMUNICATION RATING ACCOUNTED FOR
BY EACH OF THE ELEVEN SIGNIFICANT PREDICTORS PROCEEDING
FROM PRINCIPAL-SCHOOL SCORES AND CHARACTERISTICS

Predictor	% Variance in Communication Rating
Principal's Organizational Structure Score (POSS)	13.94
Socio-Economic Status of Area Served by School	7.95
Years of Administrative Experience	7.05
Number of Classrooms	4.71
Age of Principal	3.88
Number of Staff	3.30
Principal's Graduate Degree (Yes or No)	3.28
Principal's Dogmatism Rating	3.01
No. of Full-time Office Help	2.85
Number of Pupils	2.65
School's Organizational Structure (OSQ) Score	1.79
Variance Accounted For By Above Predictors	<u>54.41%</u>
Total Variance Accounted For By All Twenty-Two Principal-School Scores and Characteristics	<u>60.17%</u>

Dogmatism Rating--no hypotheses were made with respect to possible relationships between any of the principal-school variables and the Communication Rating. Consequently, this discussion is focused upon those variables not included in the hypotheses. It might be noted in passing, however, that of the significant predictors, the POSS accounted for the most and the School's OSQ Score accounted for the least of the Communication Rating's variance.

Those significant predictors which illustrated tendencies toward a direct relationship with the Communication Rating were: the socio-economic status of the attendance area served by the school; the number of classrooms in the school; the number of full-time non-professional office workers employed; the number of pupils in the school. It is interesting that all but the first of these predictors is an obvious aspect of size. Thus, despite efforts to limit the effects of size (supra p. 85), it came through as a significant predictor with respect to the Communication Rating. Barnard (2:106), Caplow (3) and Simon (11:158) all regarded size as a limiting factor upon the extent of communication possible. However, it would appear, at least for the principal in the larger school, that when this communication concerns the desirability of a bureaucratic organizational structure then size might tend to act as a stimulus rather than a limitation.

The socio-economic status of the school's attendance area is a much more difficult variable with which to deal. Just why it should be a significant predictor of the extent to which the principal has communicated his opinions concerning a desirable organizational structure, is not readily explainable from the literature or the data.

Those significant predictors, not included in hypotheses, which showed tendencies toward an inverse relationship with the Communication Rating were: the number of years of administrative experience of the principal; the age of the principal. These two predictors were correlated with each other well beyond the 0.01 level of significance. Rather obviously, except in that very unlikely instance where a principal might have succeeded to this position very quickly after spending considerable time in another occupation prior to entering education as a profession, the older the principal the more years of administrative experience he will have. It is interesting in this respect to note that "number of years in present position" was the second worst predictor of the Communication Rating accounting for only 0.03 per cent of the total variance. Barring the possible effects of confounding variables it would suggest that the older, more experienced principal, regardless of how much time he has spent in any one particular school, makes less effort to communicate to his staff his ideas on organiza-

tional structure than does the younger, less experienced principal. Possibly the more experienced principal, based on his observations over the years, has reached the same conclusion that was found empirically in the analysis of Sub-Problem 1.0. That is, no apparent relationship exists between the degree to which a principal communicates his ideas to the staff with respect to the desirability of a bureaucratic organizational structure and the degree to which this structure exists in the school. Therefore, the older he gets the less the principal bothers with this aspect of administrative communication. This in no way implies that the more experienced principal does or does not communicate extensively with his staff on other matters.

IV. ANALYSIS OF THE PRINCIPAL'S COMMUNICATION RATING ON THE BASIS OF STAFF-SCHOOL SCORES AND CHARACTERISTICS

Findings With Respect to Sub-Problem 3.0

Sub-Problem 3.0 questioned the existence of the following relationship:

Is the extent to which principals have communicated to their respective staffs their attitudes and opinions concerning an appropriate school organizational structure related to the nature and direction of the attitudes and opinions of the staff on this matter?

Three hypotheses were predicated upon this question. Even

though the third of these, Hypothesis 3.3, is concerned with the POSS rather than the SOSS it warrants discussion at this time.

Findings concerning Hypothesis 3.1. This hypothesis stated that a direct relationship would exist between the Principal's Communication Rating and the school's Staff Organizational Structure Score. This latter score, the SOSS, indicated the degree to which the staff in each school considered a bureaucratic organizational structure as being desirable in a school. Product-moment correlations of staff and school scores and characteristics with the Principal's Communication Rating (Table XVI) indicated that this hypothesis was rejected (see variable 14, Table XVI, page 124). Additional evidence substantiating this rejection came from: an analysis of variance of the school's Staff Organizational Structure Scores when these schools were grouped on the basis of their principals' Communication Ratings (Table XVII): an investigation of the t-prime one-tail probabilities of significant differences among the ordered means on the SOSS'es when the schools were grouped on the basis of their principals' Communication Ratings (Table XVIII).

Discussion concerning Hypothesis 3.1. The fact that a staff wants a more bureaucratic organizational structure does not necessarily mean, obviously, that the principal

TABLE XVI

PRODUCT-MOMENT CORRELATIONS OF STAFF-SCHOOL SCORES AND
CHARACTERISTICS WITH THE PRINCIPAL'S COMMUNICATION RATING
(SCHOOLS = 42; TEACHERS = 294 = 7 PER SCHOOL)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
1 ^a	Sex		-0.01
2 ^a	Marital Status		0.05
3	Age	-0.09	
4	Years of Teaching Experience	-0.07	
5	Years of Academic Preparation	-0.07	
6 ^a	Degree (Yes or No)		-0.09
7	Grade(s) Taught	0.02	
8 ^a	Subject Specialty (Yes or No)		0.01
9	Years of Teaching in This School	-0.08	
10	Years Teaching With This Principal	-0.20	
11 ^a	In Same Building As Office (Yes or No)		0.07
12 ^a	On Same Floor As Office (Yes or No)		0.10
13	Relative Distance From Office	-0.11	

TABLE XVI (continued)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
14	SOSS	0.06	
15	School's Congruency Score	0.77**	
16	School's OSQ Score	-0.01	

^aAs these variables were composed of dichotomous data, their product-moment correlations with the Communication Ratings were point-biserial rather than Pearson "r." The conversion formula (5:202) confirmed the 0.05 criterion for significance at 0.113, as listed in Edward's Table D (4:331).

*r_{.01}(df=292), two-tail $\geq$ 0.148

**r_{.005}(df=292), one-tail $\geq$ 0.148

TABLE XVII
ANALYSIS OF VARIANCE OF STAFF ORGANIZATIONAL STRUCTURE
SCORES WITH SCHOOLS GROUPED ON THE BASIS
OF THE PRINCIPAL'S COMMUNICATION RATING

Source	Mean Square	df	F	p
Between	204.50	2	0.08	0.93
Within	2638.24	39		

TABLE XVIII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE SOSS WITH SCHOOLS GROUPED ON
 THE BASIS OF THE PRINCIPAL'S COMMUNICATION RATING
 (SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 7 PER SCHOOL)

Means	t-Prime One-Tail Probabilities		
	1	2	3
Group 1(Upper Group) = 995.29			
	3	0.35	0.41
Group 2(Middle Group) = 991.29			-
	2	0.42	-
Group 3(Lower Group) = 987.64			
	1	-	-

must have increased the extent of his communication on this matter. Nor, on the other hand, does it necessarily mean that by being desirous of a more bureaucratic organizational structure, teachers must somehow have become more sensitive to the principal's communications on this matter. A lack of correlational relationship, therefore, seems every bit as possible as the existence of one. Indeed, this lack of a correlational relationship might well be considered a worthwhile feature of the technique used in this study to determine the Principal's Communication Rating (supra pp. 76-77). That is, on each item on the same instrument teachers were asked to state their own opinion in addition to that of their principal. The latter responses, when compared to those of the principal, provided the Principal's Communication Rating. From the results it is obvious that no confounding interaction occurred between the teachers' reporting of the degree to which they themselves desired a more bureaucratic organizational structure and their reporting of the extent to which they had been made aware of the principal's attitudes and opinions on this matter.

Findings concerning Hypothesis 3.2. This hypothesis stated that a direct relationship would exist between the Principal's Communication Rating and a school's Congruency Score. This latter score was designed to indicate the

degree to which the staff agrees, on each of forty-five items, with the principal's opinions concerning a desirable organizational structure. A product-moment correlation (see variable 15, Table XVI, page 124), significant well beyond the 0.01 level, supported this hypothesis. Further support was provided by: an analysis of variance of school's Congruency Scores with these schools grouped on the basis of their principals' Communication Ratings (Table XIX); a description of the t-prime one-tail probabilities of significant differences among the ordered means on the Congruency Scores with the schools grouped on the basis of the Principal's Communication Rating (Table XX).

Discussion concerning Hypothesis 3.2. On the basis of this finding it can be stated that the more a principal communicates to his staff his ideas about a suitable organizational structure the more his staff agrees with him. This is entirely consistent with the theory and research contained in the literature (supra p. 23). Thus the extent of administrative communication, as well as the content, is a significant factor in the determination of staff opinion concerning organizational structure. It may be suggested that in communicating to his staff his ideas concerning the desirability of a bureaucratic organizational structure, the principal has two main objectives in mind: the establishment of a more bureaucratic organizational structure; the

TABLE XIX

ANALYSIS OF VARIANCE OF CONGRUENCY SCORES WITH
SCHOOLS GROUPED ON THE BASIS OF THE
PRINCIPAL'S COMMUNICATION RATING

(SCHOOLS = 42 = 3 GROUPS OF 14; Teachers = 294 = 7 PER SCHOOL)

Source	Mean Square	df	F	p
Between	18415.00	2	12.55	0.00
Within	1467.21	39		

TABLE XX

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON CONGRUENCY SCORES WITH SCHOOLS GROUPE
 ON THE BASIS OF THE PRINCIPAL'S COMMUNICATION RATING
 (SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 7 PER SCHOOL)

Means	t-Prime One-Tail Probabilities		
	1	2	3
Group 1(Upper Group) = 1301.00			
	3	0.00	0.00
Group 2(Middle Group) =1270.00			
	2	0.01	-
Group 3(Lower Group) = 1228.64			
	1	-	

agreement of his staff with his ideas. From the findings, with respect to Sub-Problem 1.0 (supra pp. 101-108) and Sub-Problem 3.0, it would seem apparent that administrative communication regarding a bureaucratic organizational structure is substantially more successful in gaining the latter objective than the former one.

Findings concerning Hypothesis 3.3. Hypothesis 3.3 was predicated upon the prior support of two other hypotheses, Hypotheses 2.1 and 3.2. Both of these hypotheses were, in fact, supported by the research evidence. Hypothesis 2.1 (supra p. 48) posited a direct relationship between a principal's Communication Rating and his Principal's Organizational Structure Score. In confirming this relationship the findings indicated that the stronger the principal's desire for a bureaucratic organizational structure the more extensive his communication to his staff on this matter. The evidence supporting Hypothesis 3.2 (above), indicated that the more extensive a principal's communication with his staff regarding the desirability of a bureaucratic organizational structure then the greater the agreement of his staff with his opinions. Hypothesis 3.3, therefore, aimed at putting these relationships into a clearer perspective by hypothesizing that should the earlier two hypotheses be supported then a direct relationship would

probably exist between a principal's POSS and a school's Congruency Score. In other words it was hypothesized that the more a principal desired a bureaucratic organizational structure then the more his staff would agree with him. A product-moment correlation between the POSS'es and the Congruency Scores (see variable 24, Table LIX, Appendix F, p. 275), significant beyond the 0.01 level, supported this hypothesis.

Discussion concerning Hypothesis 3.3. It would seem, at least for the purposes of a study concerned with the transmission aspect of communication, that the POSS is a more useful indicator of the principal's attitude toward hierarchical authority than is the Dogmatism Scale. In addition, there was no significant correlation between the POSS and the SOSS (see variable 23, Table LIX, Appendix F, p. 275). Hence a comparison of total scores only, would have given a false impression regarding the extent of principal-staff agreement. It would also suggest that results derived from a small number of "global" ratings (supra pp. 73-74) might not examine principal and staff opinions over a wide enough range to reflect accurately the extent of differences and similarities.

Findings With Respect To Staff-School Demographic Characteristics

Findings concerning "Number of Years Teaching With This Principal." Variable 10 (Table XVI, page 123) demonstrated a negative correlation with the Principal's Communication Rating, significant beyond the 0.01 level. This variable represented staff response to a question designed to determine the number of years they had taught under their present principal. Further verification of some sort of significant relationship between this particular variable and the Principal's Communication Rating came from a summary of probabilities of significant differences among ordered means on the "Number of Years Teaching With This Principal" when schools were grouped according to the Principal's Communication Rating (Table XXI).

Discussion concerning "Number of Years Teaching With This Principal." The comparison of the ordered means revealed a skewed distribution*. The teachers in the Upper Group (i.e. the group of fourteen schools where the Communication Ratings were highest) had significantly fewer years of teaching with their principal than either of the Middle or Lower Groups of schools. There was no significant

*A test for trend (12:70-74) revealed this to be an entirely linear relationship.

TABLE XXI

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
ORDERED MEANS ON THE "NUMBER OF YEARS TEACHING WITH THIS
PRINCIPAL" WITH SCHOOLS GROUPED ON THE BASIS OF THE
PRINCIPAL'S COMMUNICATION RATING

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 7 PER SCHOOL)

Means		t-Prime Two-Tail Probabilities		
Group 1(Upper Group) = 2.10		1	2	3
	3	0.00	0.79	-
Group 2(Middle Group)= 2.97	2	0.00	-	
Group 3(Lower Group) = 3.07	1	-		

difference, with respect to this variable, between these latter two groups. This suggests the possibility that where schools have a number of younger, less experienced, less well-educated teachers, the principal seeks to inform them of the need for more hierarchical authority. The relevant correlations (see variables 3, 4, 5, and 9 in Table XVI, page 123) were in this direction but were not significant. Hence it would seem that principals, in general make an effort to ensure that relative "newcomers" become aware of principal opinions on matters concerning the authority structure. For example, it might be that most principals, in keeping with Gordon's study (6) and Reeves (9:175), look upon good teaching as being evidenced by good classroom control. These principals, therefore, make an effort to ensure that relatively new teachers are made aware of this criterion.

Findings concerning the step-wise regression analysis. A step-wise regression analysis program was used to determine the percentage of Communication Rating Variance accounted for by each of the staff-school scores and characteristics (Table XXII). The step-wise analysis program used in this study included a t-test of the level of significance of the variance accounted for by each variable. Therefore, only those variables which made significant contributions were included in Table XXII as predictors.

TABLE XXII

VARIANCE IN PRINCIPAL'S COMMUNICATION RATING ACCOUNTED FOR
BY EACH OF SEVEN SIGNIFICANT PREDICTORS PROCEEDING
FROM STAFF-SCHOOL SCORES AND CHARACTERISTICS

Predictor	% Variance in Communication Rating
School's Congruency Score	4.72
Years Teaching With This Principal	4.21
Relative Distance of Classroom From Office	1.50
Classroom On Same Floor As Office	0.97
Classroom In Same Building As Office	0.97
Staff Organizational Structure Score (SOSS)	0.82
Marital Status	0.69
Variance Accounted For By Above Predictors	<u>13.88%</u>
Total Variance Accounted For By All Sixteen Staff-School Characteristics	<u>14.70%</u>

Discussion concerning the step-wise regression analysis. Apart from the hypotheses already discussed--those involving relationships between the Communication Rating and, in turn, the SOSS and the Congruency Score--no hypotheses were made concerning possible relationships between staff-school variables and the Communication Rating. Both of the "hypotheses" variables showed up as significant predictors as did the previously discussed "Years Teaching With This Principal." This latter predictor and the Congruency Score were the only two which, despite the statistical significance of the others, really accounted for very much of the variance. The SOSS, for example, accounted for less than one per cent. This is in keeping with the findings about the SOSS discussed earlier in this chapter.

Of the other significant predictors, not included in hypotheses, three were related to propinquity of the teacher's classroom and the principal's office: relative distance of classroom from office; is the classroom on the same floor as the principal's office; is the classroom in the same building as the principal's office. Together, these three accounted for about only three per cent of the variance of the Communication Rating. The directions of the correlations of these variables (see variables 13, 11 and 12, Table XVI, pages 123-124) indicate that the "distance" variable had a tendency toward a negative relationship

with the Communication Rating whereas the other two had tendencies toward positive relationships. This is not as contradictory as it appears at first glance. In accordance with Simon's theory (11:158), those teachers who work in the same building and on the same floor as the principal are relatively more accessible to his personal communications than, by contrast, those teachers who work on a different floor or in a different building. At the same time, in accordance with this report's earlier discussion of the "size" factor as it related to the principal-school scores and characteristics (supra pp. 119-120), in the larger school where relatively more teachers have classrooms relatively farther away from the principal's office the principal communicates more extensively his opinions with respect to organizational aspects of hierarchical authority.

One other predictor remains, "Marital Status." The positive direction of its correlation (non-significant; see variable 2, Table XVI, page 123) indicates that there was a tendency toward married teachers being made more aware of the principal's opinions concerning the desirability of hierarchical authority than were single teachers. However, the effects of this upon the Communication Rating were minimal. Marital Status was just barely a significant predictor and accounted for approximately two-thirds of one per cent of the variance.

Summary of the step-wise regression analysis. In summary, the total Communication Rating variance accounted for by all of the staff-school scores and characteristics was about fifteen per cent (Table XXII, page 136). This contrasts with the sixty or so per cent accounted for by the principal-school scores and characteristics (Table XV, page 118). One implication of this difference is difficult to ignore. The fact that the principal's characteristics--and those school characteristics primarily of concern to the principal--accounted for four times as much of the variance as did the staff characteristics, suggests that the Principal's Communication Rating performed its intended task. That is, it concentrated upon measuring the principal's degree of communication rather than just the staff's degree of perceptiveness.

V. ANALYSIS OF THE PRINCIPAL'S COMMUNICATION RATING ON THE BASIS OF SCHOOL SYSTEMS

Findings

An analysis of variance of the Principal's Communication Rating with schools grouped on the basis of school systems (Table XXIII) revealed that there were no significant differences among these three urban systems with respect to the Communication Rating. An analysis of the

TABLE XXIII
 ANALYSIS OF VARIANCE OF PRINCIPAL'S COMMUNICATION RATING
 WITH SCHOOLS GROUPED ON THE BASIS OF SCHOOL SYSTEMS
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	1728.00	2	0.51	0.60
Within	3371.59	39		

probabilities of significant differences among ordered means on the Communication Rating with the schools again grouped on the basis of system (Table XXIV), confirmed the results of the analysis of variance.

Discussion

Each of the three urban systems selected was from a different Western Canadian province. Starting with the smallest system the ratio of size of the basis of both number of pupils and number of staff was approximately 1.0-2.4-3.3 (supra p. 84). The systems were identified by letter commencing with the largest. Hence systems "A," "B" and "C" were ordered in something close to a 3-2-1 relationship. It appears, therefore, that while size of the individual school was related to the degree of administrative communication regarding hierarchical authority (supra pp. 118-119), size of the system was not. Finally, it also would seem possible that potential differences in the organization and operation of the three respective provincial Departments of Education did not affect the Communication Rating either.

VI. SUMMARY

Highly significant differences were found among schools with respect to the Principal's Communication Rat-

TABLE XXIV

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE PRINCIPAL'S COMMUNICATION RATING
 WITH SCHOOLS GROUPED ON THE BASIS OF SCHOOL SYSTEMS
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means		t-Prime Two-Tail Probabilities		
System A = 1290.86		A	B	C
	C	0.35	0.91	-
System B = 1272.86	B	0.39	-	
System C = 1270.57	A	-		

ing. If the Principal's Communication Rating is a valid measurement, this demonstrated the effectiveness of the instrumentation and technique used to determine if there were differences among schools in the extent of administrative communication concerning hierarchical authority. Based on step-wise regression analyses these differences were largely attributed to those scores and characteristics descriptive of the principal and his administrative concerns. A minor part of the differences was attributed to staff scores and characteristics and none at all to system (or provincial department) differences.

No significant relationships were found between the Principal's Communication Rating and: the degree of bureaucratization observed in the school; the principal's degree of dogmatism; the degree to which the school staff desired a bureaucratic organizational structure.

Highly significant and direct relationships were found between the Principal's Communication Rating and: the extent to which the principal desired a bureaucratic organizational structure; the extent of agreement between principal and staff with respect to the desirability of a bureaucratic organizational structure. In addition, a highly significant and direct relationship was found between the extent to which a principal desired a bureaucratic organizational structure and the extent to which the staff

agreed with him on this matter.

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CHAPTER V

RESULTS, ANALYSIS AND DISCUSSION: ORGANIZATIONAL STRUCTURE QUESTIONNAIRE SCORES

I. PRELIMINARY ANALYSIS OF OSQ SCORES

Findings

Prior to investigating the remaining sub-problem, an analysis was made of the extent to which the forty-two sampled schools differed in their observed degree of bureaucratization (supra p. 13). An analysis of variance of all OSQ Scores, with schools grouped on the basis of this data, revealed that schools differed significantly in their observed degree of bureaucratization (Table XXV) well beyond the 0.01 level. This was further revealed and confirmed by an examination of the t-prime one-tail probabilities of significant differences among the ordered means of the three groups (Table XXVI).

Discussion

These results were an indication of the effectiveness of this study's specially developed instrument (supra pp. 60-73) for determining if there were differences among schools in the extent of bureaucratization. In developing the Organizational Structure Questionnaire, an uni-

TABLE XXV

ANALYSIS OF VARIANCE OF THE ORGANIZATIONAL STRUCTURE
QUESTIONNAIRE SCORE WITH SCHOOLS GROUPED ON THE
BASIS OF THIS SCORE
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	129304.25	2	81.17	0.00
Within	1592.94	39		

TABLE XXVI

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE
 SCORE; SCHOOLS GROUPED ON THE BASIS OF THIS SCORE
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime One-Tail Probabilities			
Group 1(Upper Group) = 1163.71		1	2	3
	3	0.00	0.00	-
Group 2(Middle Group)= 1047.64	2	0.00	-	
Group 3(Lower Group) = 973.00	1	-		

dimensional instrument (supra pp. 70-73), this study was attempting to avoid some of the analytical problems caused by the negatively correlated dimensions of a multi-dimensional questionnaire. Despite the apparent effectiveness of the OSQ at this early stage of assessment, additional analyses (e.g. validity tests) are needed before considering it for future research studies.

II. ANALYSIS OF THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE ON THE BASIS OF PRINCIPAL-STAFF-SCHOOL SCORES AND CHARACTERISTICS

Findings With Respect to Sub-Problem 4.0

Sub-Problem 4.0 was worded as follows:

Are those principal and staff attitudes and opinions, upon which the principal's Communication Rating is focused, related to the degree of bureaucratization which is observed in the school?

Findings concerning Hypothesis 4.1. Hypothesis 4.1, which proceeded from the above question, stated that a direct relationship would exist between the extent to which the principal desired a more bureaucratic organizational structure (POSS) and the degree of bureaucratization observed to actually exist (OSQ Score). A product-moment correlation (variable 11, Table XXVII) significant beyond the 0.01 level, supported this hypothesis. Additional

TABLE XXVII

PRODUCT-MOMENT CORRELATIONS OF PRINCIPAL-SCHOOL SCORES AND
CHARACTERISTICS WITH ORGANIZATIONAL
STRUCTURE QUESTIONNAIRE SCORES

(SCHOOLS = 42; PRINCIPALS = 42)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
1 ^a	Sex		0.00
2 ^a	Marital Status		-0.15
3	Age	0.21	
4	Years of Teaching Experience	0.12	
5	Years of Academic Preparation	0.29	
6 ^a	Graduate Degree (Yes or No)		0.04
7	Years of Administrative Experience	0.04	
8	Years in Present Position	-0.03	
9	No. of Teaching Periods Per Week	-0.42*	
10	Dogmatism Rating	-0.22	
11	POSS	0.40**	
12	Major Medium of Communication	-0.23	
13	Principal's Communica- tion Rating	-0.01	

TABLE XXVII (continued)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
14	Number of Floors in the School	0.06	
15	Number of Classrooms	0.29	
16	Number of Classrooms on Office Floor	-0.01	
17	Number of Pupils	0.61*	
18	Number of Staff	0.09	
19	Number of Full-time Office Help	0.45*	
20	Number of Part-time Office Help	-0.03	
21	Socio-Economic Status of Area	0.08	

^a Point-biserial (see notation, bottom of Table VIII). The two-tail 0.05 criterion for significance, as listed in Ferguson's Table F (3:315), was 0.304.

*r._{.01} (df=40), two-tail $\geq$ 0.393

**r._{.005} (df=40), one-tail $\geq$ 0.393

support came from an examination of the t-prime one-tail probabilities among ordered means on the POSS when schools were grouped on the basis of the OSQ Score (Table XXIX). This investigation revealed a skewed distribution*. The Upper Group had scores significantly greater than the Middle and Lower Groups (at the 0.02 level in both instances). However, these latter two groups showed no significant difference. The lack of over-all significance on the analysis of variance of the POSS'es with schools grouped on the basis of the OSQ Scores (Table XXVIII), may be attributable to this skewness.

Discussion concerning Hypothesis 4.1. From this it would appear that the more a principal desires a bureaucratic organizational structure (POSS) the more of it he gets (OSQ Score). If a "causal" relationship could be inferred to go in this direction, it would be in keeping with previous speculation (supra pp. 34-36, 43). However, in view of the lack of a significant correlation between the principal's extent of communication** on this subject and

*A test for trend (11:70-74) revealed this to be an entirely linear relationship.

**This study's definition of communication (supra pp. 9-11) including non-verbal as well as verbal behavior.

TABLE XXVIII

ANALYSIS OF VARIANCE OF THE PRINCIPAL'S ORGANIZATIONAL
STRUCTURE SCORE WITH SCHOOLS GROUPED ON THE BASIS OF
THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE SCORE
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	639.73	2	2.72	0.08
Within	235.46	39		

TABLE XXIX

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE POSS WITH SCHOOLS GROUPED ON THE
 BASIS OF THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE SCORES
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime One-Tail Probabilities		
	1	2	3
Group 1(Upper Group)= 150.57			
	3	0.02	0.40
Group 2(Middle Group)=139.64			
	2	0.02	-
Group 3(Lower Group) =138.21			
	1	-	

the observed degree of bureaucratization (supra pp. 102, 107-108), one could speculate that if any "causal" relationship exists it might well flow in the opposite direction. That is to say, there might be a number of more important determinants of the degree of bureaucratization (see Table XXXVII, page 170) than the principal's desire for it. If these are more or less beyond the principal's control, then one might speculate that the more bureaucratization a principal finds in his school the more he comes to approve of it. Therefore, the actual direction of this relationship, including the distinct possibility that it is reciprocal in nature, would seem a logical area for further investigation.

Findings concerning Hypothesis 4.2. This hypothesis stated that there would be a direct relationship between the extent to which a school staff desired a more bureaucratic organizational structure (SOSS) and the degree of bureaucratization observed to actually exist (OSQ Score). A product-moment correlation (variable 14, Table XXX), significant beyond the 0.01 level, supported this hypothesis. Further support came from: an analysis of variance of the SOSS's with the schools grouped on the basis of the OSQ Score (Table XXXI); an analysis of the t-prime one-tail probabilities among ordered means on the SOSS when schools

TABLE XXX

PRODUCT-MOMENT CORRELATIONS OF STAFF-SCHOOL SCORES AND
CHARACTERISTICS WITH THE ORGANIZATIONAL STRUCTURE
QUESTIONNAIRE SCORES

(SCHOOLS = 42; TEACHERS = 294 = 7 PER SCHOOL)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
1 ^a	Sex		-0.15**
2 ^a	Marital Status		-0.03
3	Age	0.05	
4	Years of Teaching Experience	0.08	
5	Years of Academic Preparation	0.14*	
6 ^a	Degree (Yes or No)		0.04
7	Grade(s) Taught	-0.00	
8 ^a	Subject Specialty (Yes or No)		0.16**
9	Years Teaching in This School	0.10	
10	Years Teaching With This Principal	0.00	
11 ^a	In Same Building As Office (Yes or No)		-0.01
12 ^a	On Same Floor As Office (Yes or No)		-0.08
13	Relative Distance From Office	0.03	

TABLE XXX (continued)

Variable Number	Description	Product-Moment Correlation r r _{pbi}
14	SOSS	0.40***
15	School's Congruency Score	0.08

^a Point-biserial correlations (see notation, bottom of Table VIII).

*r_{.05} (df=292), two-tail $\geq$ 0.113

**r_{.01} (df=292), two-tail $\geq$ 0.148

***r_{.005} (df=292), one-tail $\geq$ 0.148

TABLE XXXI

ANALYSIS OF VARIANCE OF STAFF ORGANIZATIONAL STRUCTURE

SCORES WITH SCHOOLS GROUPED ON THE BASIS OF THE

ORGANIZATIONAL STRUCTURE QUESTIONNAIRE SCORES

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 7 PER SCHOOL)

Source	Mean Square	df	F	p
Between	13884.25	2	7.17	0.00
Within	1936.72	39		

remained grouped on the OSQ Scores (Table XXXII).

Discussion concerning Hypothesis 4.2. This finding is in keeping with the relevant literature and the speculation based thereon (supra pp. 33-36, 43). However, it is contradictory to MacKay's finding (5:91), based on the use of the "global rating" desirability items (supra pp. 87-89), that no such relationship existed. The same respondents, on the Organizational Inventory used by MacKay*, answered both the sixty-two "what is" items and the six "what should be" items. This means that while it was an advantage to know that confounding interaction had not occurred, at the same time the "global rating" approach made it difficult to determine the extent to which the staff might or might not have influenced the degree of observed bureaucratization.

Findings With Respect to Principal-School Demographic Characteristics

Findings concerning "Number of Principal Teaching Periods A Week." Variable nine, in Table XXVII, page 150, demonstrated a negative correlation with the OSQ Score significant beyond the 0.01 level. It was a description of the principal's number of teaching periods a week. Further

*An earlier version of the School Organizational Inventory discussed in Chapter III of this study (supra pp. 60-63).

TABLE XXXII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE SOSS WITH SCHOOLS GROUPED ON
 THE BASIS OF THE OSQ SCORE

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 7 PER SCHOOL)

Means	t-Prime One-Tail Probabilities		
Group 1(Upper Group) = 1019.36	1	2	3
Group 2(Middle Group)= 997.57	3	0.00	0.00
	2	0.00	-
Group 3(Lower Group) = 957.29	1	-	

verification of a significant relationship between this particular variable and the observed degree of bureaucratization was supplied by a summary of probabilities of significant differences among ordered means on the "Number of Teaching Periods per Week" with schools grouped according to the Organizational Structure Questionnaire Scores (Table XXXIII).

Discussion concerning "Number of Principal Teaching Periods Per Week." The comparison of the ordered means revealed a significant difference, beyond the 0.01 level, between the Lower (i.e. the group of schools with the least bureaucratic organizational structure) and Upper Groups. The Middle Group did not significantly differ from either of the other two. Thus the correlational test (Table XXVII, page 150) and the discrimination test (Table XXXIII) both indicated that the fewer the number of teaching periods per week handled by the principal the more bureaucratic the organizational structure. This might be due to one or both of two reasons. Firstly, the larger the school the more likely administration becomes a full-time job. Consequently, the principal has far less time--possibly even none--for teaching duties and, concomitantly, the various manifestations of hierarchical authority become more evident to the observer. Secondly, the more teaching periods per week that the prin-

TABLE XXXIII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF TEACHING PERIODS PER WEEK"
 WITH SCHOOLS GROUPED ON THE BASIS OF THE OSQ SCORE
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
Group 3(Lower Group) = 4.00	3	2	1
	1	0.00	0.32
Group 2(Middle Group)= 2.43	2	0.08	-
	3	-	-
Group 1(Upper Group) = 1.50			

principal has the more likely he is to be regarded, both by his staff and himself, as another teacher as opposed to being regarded as the superior administrative authority.

Findings concerning "Number of Pupils." Variable seventeen (Table XXVII, page 151) demonstrated a positive correlation with the OSQ Score, significant beyond the 0.01 level. It measured, on the basis of the assessment of each principal, the number of pupils in each school. Further evidence of the strength of this relationship between the "Number of Pupils" and the observed degree of bureaucratization was provided by the summary of probabilities of significant differences among ordered means on variable seventeen when the schools were grouped on the basis of the Organizational Structure Questionnaire Scores (Table XXXIV).

Discussion concerning "Number of Pupils." While every effort was made in the sampling procedure (supra pp. 83-86) to limit the effects of size there was no attempt made to eliminate it altogether through statistical techniques*. If size does happen to be the primary determinant of the degree of bureaucracy, then the elimination of its influence from the data would give an artificial and

*Robinson (7:57), for example, partialled out the effects of size in an attempt to examine "residual" relationships.

TABLE XXXIV

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF PUPILS" WITH SCHOOLS
 GROUPED ON THE BASIS OF THE OSQ SCORE
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	1	2	3
Group 1(Upper Group) = 740.29	1	2	3
	3 0.00	0.01	-
Group 2(Middle Group)= 626.21	2 0.02	-	
Group 3(Lower Group) = 535.14	1 -		

distorted picture of the true situation. The factor used by this study to limit the effects of size was the number of staff. From both Table XXVII (variable 18, page 151) and Table XXXV it is apparent that this effort was successful. That is to say, there were no significant differences between the groups on this element nor did it correlate significantly with the OSQ Score. Putting these two facts together (i.e. the significant differences in the number of pupils but not the number of staff) led to a logical conclusion which was not forthcoming from the earlier studies of bureaucracy: it is not the number of staff or the number of pupils, in themselves, which are major determinants of the degree of bureaucratization, but the ratio between them*. As mentioned by Reeves (6:175) and Bidwell (2:974-975), the level of socialization of pupils which society expects the schools to achieve cannot be reached if pupil behavior interferes with those classroom activities essential to the learning process. The more pupils one teacher must deal with, and thus the more pupils overall for the principal,

*As a consequence of this conclusion a follow-up Pearson product-moment correlation--across all forty-two schools--was conducted between each school's pupil-to-teacher ratio and its degree of bureaucratization (i.e. the OSQ Score). The correlation was 0.65. This was significant well beyond the 0.01 level. The correlation was even greater than that which occurred between the "Number of Pupils" and the degree of bureaucratization.

TABLE XXXV

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF STAFF" WITH SCHOOLS
 GROUPED ON THE BASIS OF THE OSQ SCORE
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
Group 2(Middle Group) = 20.93	2	1	3
Group 1(Upper Group) = 20.79	3 0.38	0.46	-
	1 0.89	-	
Group 3(Lower Group) = 20.07	2 -		

the greater the need for the controlling effects of a bureaucratic organizational structure.

Findings concerning "Number of Full-Time Office Help." This variable (number 19 in Table XXVII, page 151) demonstrated a positive correlation with the OSQ Score, significant beyond the 0.01 level. It was a measure of the number of full-time non-professional office staff employed within each school. Further confirmation of a significant relationship between "Number of Full-Time Office Help" and the observed degree of bureaucratization came from a summary of probabilities of significant differences among ordered means on variable nineteen with schools grouped on the basis of the Organizational Structure Questionnaire Score (Table XXXVI). This investigation revealed significant differences, beyond the 0.01 and 0.05 levels respectively, between the Upper and Lower Groups and the Middle and Lower Groups. No significant difference was found between the Upper and Middle Groups*.

Discussion concerning "Number of Full-Time Office Help." This relationship, between the number of full-time office help and the observed degree of bureaucratization,

*A test for trend (11:70-74) revealed this slightly skewed relationship to be entirely linear in character.

TABLE XXXVI

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF FULL-TIME OFFICE HELP"
 WITH SCHOOLS GROUPED ON THE BASIS OF THE OSQ SCORE
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	1	2	3
Group 1 (Upper Group) = 1.00			
	3	0.00	0.04
Group 2 (Middle Group) = 0.71	2	0.13	-
	1	-	-
Group 3 (Lower Group) = 0.36			

probably was another manifestation of the influence of size. The "Number of Full-Time Office Help" and "The Number of Pupils" correlated positively beyond the 0.01 level of significance whereas this same variable and "The Number of the Principal's Teaching Periods per Week" correlated negatively at about the same degree of significance (see variables 4 and 6, Table LX, Appendix F, page 276). Apparently, the more administrative functions become a full-time job for the principal the more office assistance he needs. As Simon (9:165), with respect to decision-making and communication, stated, "Decision-centers themselves--that is executive positions--must often be staffed with persons who can assist the executive in his . . . functions."

Findings concerning the step-wise regression analysis. A step-wise regression analysis program was used to determine the percentage of the variance of the observed degree of bureaucratization (OSQ Score) accounted for by each of the principal-school scores and characteristics (Table XXXVII). The step-wise analysis program used in this study included a t-test of the level of significance of the variance accounted for by each variable. Only those variables which made significant contributions were included in Table XXXVII as predictors.

TABLE XXXVII

VARIANCE IN THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE SCORE
ACCOUNTED FOR BY EACH OF THE ELEVEN SIGNIFICANT PREDICTORS
PROCEEDING FROM PRINCIPAL-SCHOOL SCORES AND CHARACTERISTICS

Predictor	% Variance in OSQ Score
Number of Pupils	36.91
Number of Staff	7.89
Number of Part-Time Office Help	5.98
Principal's Dogmatism Rating	4.58
POSS	3.76
Number of Full-Time Office Help	3.68
Socio-Economic Status of the Area Served by the School	3.62
Major Medium of Communication	3.59
Principal's Communication Rating	2.60
Years of Academic Preparation	2.23
Years of Teaching Experience	1.66
Variance Accounted For By Above Predictors	<u>76.50%</u>
Total Variance Accounted For By All Twenty-One Principal-School Scores and Characteristics	<u>78.77%</u>

Discussion concerning the step-wise regression analysis. Of the eleven significant predictors five have already been discussed: Number of Pupils; Number of Staff; Principal's Organizational Structure Score; Number of Full-Time Office Help; Principal's Communication Rating. A sixth predictor, "Number of Part-Time Office Help" has also, in effect, been discussed. This predictor is the reciprocal of the "Full-Time Office Help" predictor. It showed a tendency toward a negative correlation with the OSQ Score (variable 20, Table XXVII, page 151) and a significant negative correlation, beyond the 0.01 level, with "Full-Time Office Help" (variable 7, Table LX, Appendix F, page 276). It would seem logical, even without this empirical support, that the more full-time non-professional help was employed the less provision would need to be made for part-time arrangements.

Of the remaining significant predictors, three demonstrated tendencies toward a direct relationship with the Organizational Structure Questionnaire Score: the Socio-Economic Status of the Area Served by the School; the Principal's Years of Academic Preparation; the Principal's Years of Teaching Experience.

The measurement of the socio-economic level of each school's attendance area was done by a five-point Likert-type response scale. The five socio-economic levels ranged

from lower=lower class, scored as a one, to upper class, scored as a five. Thus the higher the socio-economic level the higher the score. The results of this study would seem to contradict Anderson (1:104) who found an inverse relationship (i.e. the lower the socio-economic level the greater the degree of bureaucratization, especially with respect to rules and regulations). From Table XXXVIII it can be seen that there was no significant difference between the most bureaucratic schools and the least bureaucratic schools with respect to the socio-economic level of the area served. Consequently, the schools in this sample represented a far narrower range, with regard to socio-economic level, than did Anderson's sample. The schools of the present sample, almost without exception, would appear to have served an area with a socio-economic level somewhere between lower-middle class and upper-middle class.

The apparent relationship between the "Number of Years of Academic Preparation" on the part of the principal and the school's degree of bureaucratization (Table XXXVII, page 170) indicates that very probably school systems assign their more highly qualified principals to the larger schools. Further support for this line of speculation appears in Table XXXVIII. This table indicates that the principals of those fourteen schools scoring highest on the Organizational Structure Questionnaire were significantly

TABLE XXXVIII

A COMPARISON OF THE MOST BUREAUCRATIC AND LEAST BUREAUCRATIC SCHOOLS WITH RESPECT TO SIGNIFICANT DIFFERENCES ON A NUMBER OF SELECTED PRINCIPAL-SCHOOL SCORES AND CHARACTERISTICS
(SCHOOLS = 28; 2 GROUPS OF 14 SCHOOLS EACH)

Variable	Group	Mean	t-Prime Probability of Differences
Socio-Economic Level	High OSQ Scores	3.14	0.78
	Low OSQ Scores	3.07	
Years of Academic Preparation	High OSQ Scores	5.86	0.02
	Low OSQ Scores	5.14	
Years of Teaching Experience	High OSQ Scores	27.14	0.74
	Low OSQ Scores	26.00	
Principal's Dogma- tism Rating	High OSQ Scores	45.21	0.05*
	Low OSQ Scores	48.71	
Major Medium of Communication	High OSQ Scores	2.79	0.16
	Low OSQ Scores	3.29	

*This is a one-tail probability. The others are all two-tail probabilities. The two-tail probability for the Dogmatism Rating was 0.09.

superior, with respect to the number of years of academic preparation, to the principals of the fourteen schools scoring the lowest on the OSQ. In addition to the likely influence of size one might also speculate that the more academic preparation the principal has the more he becomes sure of himself and his position. This increased sense of confidence and competence, in turn, could lead to stronger manifestations of hierarchical authority.

The principal's "Number of Years of Teaching Experience" has some overlap with the number of years of administrative experience. This is so because the forty-two principals in the sample were teaching an average of 2.60 periods a week. As was shown in Tables XXVII, page 150, and XXXIII, page 162, "teaching periods" were significantly and negatively correlated with the observed degree of bureaucratization. The principal's years of teaching experience, the last significant predictor, accounted for about one and two-thirds per cent of the total variance. Thus, it is not a strong predictor nor discriminatory between the most bureaucratic and the least bureaucratic schools (Table XXXVIII, page 173). However, even the small extent to which this variable is related to the OSQ Score helps confirm Washburne's (10) contention that the longer teachers stay in the profession the more bureaucratically oriented they become, especially those--e.g. principals--who seek and

receive rewards from the organization.

There were two significant predictors which showed tendencies toward inverse relationships with the OSQ Score: the Principal's Dogmatism Rating and the Major Medium of Communication used by the principal.

As indicated in Table XXXVIII, page 173, the OSQ Score differentiated between the principals with the lowest Dogmatism Rating and those with the highest. This negative relationship is a reversal of the relationship which could have been inferred and/or hypothesized from the literature (supra pp. 40-43). However, taken in conjunction with the "Major Medium of Communication," a few threads of explanation appear. This "medium" variable was scored on a four-point scale ranging from "face-to-face conversations" down to "written instructions." The more personal the method of communication the higher the score. Although this item did not significantly discriminate between the most bureaucratic and the least bureaucratic schools (Table XXXVIII, page 173) it was a significant predictor of the degree of bureaucratization. The trend of this relationship indicated that the less bureaucratic the school the more personal the medium of communication (and/or vice versa). Rokeach stated (8:58):

The more closed the belief system, the more difficult should it be to distinguish between information received about the world and information received about the source.

Proceeding from this description of the degree of dogmatism the evidence seems to indicate that the more dogmatic principals in the sample were perhaps more prone to making decisions on the basis of personality rather than impersonality.

Findings With Respect to Staff-School Demographic Characteristics

Findings concerning "Sex." This variable (number 1, Table XXX, page 156) demonstrated a negative point-biserial correlation with the OSQ Score, significant beyond the 0.01 level. It was a measure of the number of male and female teachers in each school. The direction of this correlation indicated that the degree of bureaucratization was greater in those schools having more male teachers. A chi-square* test was made of the ordered group totals of male and female teachers (Table XXXIX). This summary of probabilities of differences was conducted with the schools grouped on the basis of the OSQ Score. It revealed that while a definite trend existed in keeping with the correlation, there were no significant differences among the three groups of schools with respect to the male-female demographic characteristic.

*As this was a dichotomous variable, chi-square tests (3:157-172) were used in lieu of the t-prime tests normally used in this study.

TABLE XXXIX

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED TOTALS ON THE MALE-FEMALE DEMOGRAPHIC VARIABLE
 WITH SCHOOLS GROUPED ON THE BASIS OF THE OSQ SCORE
 (SCHOOLS = 42 = 3 GROUPS of 14; TEACHERS = 294 = 98 PER GROUP)

Totals	Chi-Square Probabilities of Differences		
	1	2	3
Group 1(Upper Group): M=24; F=74	3 0.08	0.58	-
Group 2(Middle Group): M=17; F=81	2 0.22	-	
Group 3(Lower Group): M=14; F=84	1 -		

Discussion concerning "Sex." It should be noted (Table XLII, page 184) that "Sex" was a significant but poor predictor of the OSQ Score. In this same table it can be seen that, taken together, all of the staff characteristics accounted for less than a quarter of the total variance in the OSQ Score. Thus even though it may be the case that those schools having more male teachers displayed a greater degree of bureaucratization, the overall characteristics of the teachers in the sample apparently were of little consequence in the determination of this bureaucratization.

Findings concerning "Number of Years of Academic Preparation." This variable, (number 5, Table XXX, page 156) demonstrated a positive correlation with the OSQ Score, significant at the 0.05 level. It measured the number of "Years of Academic Preparation" of the teacher. A further examination of this relationship was conducted by way of a summary of probabilities of significant differences among ordered means on variable five with schools grouped on the basis of the Organizational Structure Questionnaire Score (Table XL). This revealed a significant difference, at the 0.01 level, between the most bureaucratic and the least bureaucratic schools. Neither of these two groups differed significantly from the Middle Group with respect to variable five.

TABLE XL

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE TEACHERS' "YEARS OF ACADEMIC
 PREPARATION" WITH SCHOOLS GROUPED
 ON THE BASIS OF THE OSQ SCORES

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 7 PER SCHOOL)

Means	t-Prime Two-Tail Probabilities		
	1	2	3
Group 1 (Upper Group) = 3.06			
	3	0.01	0.06
Group 2 (Middle Group) = 2.95			-
	2	0.51	-
Group 3 (Lower Group) = 2.62			
	1	-	-

Discussion concerning "Number of Years of Academic Preparation." Possibly, as with the similar variable descriptive of the principal (supra pp. 172-174), this relationship is a manifestation of "size." That is to say, the more highly qualified teachers in this sample might have been allocated to the larger schools as a matter of central office policy.

Findings concerning "Subject Specialty, Yes or No." This variable, which correlated positively with the OSQ Score beyond the 0.01 level (Table XXX, page 156), was designed to determine the number of elementary school teachers in the sample who taught a subject specialty to a number of classes rather than all subjects to one class. From the direction and significance of the point-biserial correlational relationship it appears that, in the sample, the more bureaucratic schools had more teachers who taught at least one subject specialty. A chi-square test of the ordered group totals of "Subject Specialty (Yes or No)," as presented in Table XLI, was conducted with the schools grouped on the basis of the OSQ Score. This revealed a somewhat skewed distribution*: the Upper Group (i.e. those fourteen schools with the highest OSQ Scores) had significantly more

*A test for trend (11:70-74) indicated that this was an entirely linear relationship.

TABLE XLI

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
ORDERED TOTALS ON THE "SUBJECT SPECIALTY (YES OR NO)"

DEMOGRAPHIC VARIABLE WITH SCHOOLS GROUPED ON THE
BASIS OF THE OSQ SCORES

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 98 PER GROUP)

Totals	Chi-Square Probabilities of Difference		
	1	2	3
Group 1 (Upper Group): Yes=34; No=64			
	3	0.01	0.48
Group 2 (Middle Group): Yes=21; No=77			
	2	0.04	-
Group 3 (Lower Group): Yes=17; No=81			
	1	-	-

"subject" teachers, at the 0.01 and 0.04 levels respectively, than either of the Lower or Middle Groups. There was no significant difference between the Middle and Lower Groups with respect to the number of "subject" teachers.

Discussion concerning "Subject Specialty, Yes or No."

This finding is in keeping with the literature (supra pp. 28-29). One of the reasons elementary schools were chosen for this study was their organizational simplicity and similarity from system to system and province to province. As Bidwell (2:975) pointed out, it is the temporal dimension, rather than the differentiation of subject content, which is the usual basis for the division of labor in the elementary school. Nonetheless, it would seem, from the present research evidence, that some differentiation of subject content is occurring at the elementary school level. At the same time it is rather limited in scope. Commencing with the Upper Group (i.e. the schools with the highest OSQ Scores) the average numbers of "subject" teachers in each school for each of the three groups were: 2.42, 1.50, 1.21. The overall average was 1.71. Despite the statistical significances which occurred, the elementary schools in the sample averaged less than two teachers in seven (i.e. the OSQ Score consisted of the responses of seven teachers in each school) who were considered to be subject specialists.

Findings concerning the step-wise regression analysis. A step-wise regression analysis program was used to determine the percentage of the variance of the observed degree of bureaucratization (OSQ Score) accounted for by each of the staff-school scores and characteristics (Table XLII). The step-wise analysis program used in this study included a t-test of the level of significance of the variance accounted for by each variable. Only those variables which made significant contributions were included in Table XLII as predictors.

Discussion concerning the step-wise regression analysis. Of the seven significant predictors listed in Table XLII, four have already been discussed: the Staff Organizational Structure Score (SOSS); Subject Specialty; Years of Academic Preparation; Sex.

Of the remaining significant predictors, two demonstrated tendencies toward a direct relationship with the Organizational Structure Questionnaire Score: the School's Congruency Score; the "Years With This Principal."

The finding that the Congruency Score was a significant predictor of the observed degree of bureaucratization is in accordance with the speculation which was delineated earlier in this study (supra p. 43). This line of reasoning saw the possibility that: the more a principal desired a

TABLE XLII

VARIANCE IN THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE SCORE
ACCOUNTED FOR BY EACH OF THE SEVEN SIGNIFICANT PREDICTORS
PROCEEDING FROM STAFF-SCHOOL SCORES AND CHARACTERISTICS

Predictor	% Variance in OSQ Score
Staff Organizational Structure Score	16.16
Subject Specialty (Yes or No)	1.65
School's Congruency Score	1.33
Years of Academic Preparation	1.12
Years With This Principal	0.65
Grade Taught	0.57
Sex	0.55
Variance Accounted For By Above Predictors	<u>22.03%</u>
Total Variance Accounted For By All Sixteen Staff-School Scores and Characteristics	<u>23.22%</u>

bureaucratic organizational structure the greater the observed degree of bureaucratization (Hypothesis 4.1, accepted); the more the principal desired a bureaucratic organizational structure the more the staff agreed with him (Hypothesis 3.3, accepted). Therefore, the reasoning concluded, the organizational structure of the school should be more bureaucratic in character where the principal and staff have a greater degree of opinion congruence with respect to organizational structure matters. Even though there was a trend in the data towards this last conclusion--on the basis of the Congruency Score being a significant predictor of the OSQ Score-- it cannot be accepted without reservation. From Table XLIII it can be seen that the Congruency Score did not significantly differentiate between those fourteen schools with the highest OSQ Scores and the fourteen with the lowest.

The "Years With This Principal" variable accounted for about only two-thirds of one per cent of the OSQ variance. Consequently, while a "significant" predictor, it is not really of much moment. Table XLIII indicates that this variable did not significantly discriminate between the fourteen schools with the highest OSQ and the fourteen with the lowest. The very minor extent that this variable did relate to the observed degree of bureaucratization might be attributed to teachers staying longer with those principals

TABLE XLIII

A COMPARISON OF THE MOST BUREAUCRATIC AND LEAST BUREAUCRATIC
SCHOOLS WITH RESPECT TO SIGNIFICANT DIFFERENCES ON A NUMBER
OF SELECTED STAFF-SCHOOL SCORES AND CHARACTERISTICS
(SCHOOLS = 28 = 2 GROUPS OF 14; TEACHERS = 196 = 98 PER GROUP)

Variable	Group	Mean	t-Prime Probability of Differences
School's Congruency Score	High OSQ Scores	1267.64	0.17
	Low OSQ Scores	1258.79	
Years With This Principal	High OSQ Scores	2.71	0.36
	Low OSQ Scores	2.29	
The Grade Taught	High OSQ Scores	3.63	0.70
	Low OSQ Scores	3.73	

who have an acceptably similar bureaucratic orientation.

The last remaining predictor, "The Grade Taught," had a tendency toward a negative relationship with the observed degree of bureaucratization. This variable accounted for about one-half of one per cent of the OSQ Score variance. At the same time (Table XLIII, page 186) it failed to discriminate significantly between the most bureaucratic schools and the least bureaucratic schools. The extent, though almost negligible in degree, that this variable was negatively connected with the observed degree of bureaucratization might have been due to "provincial" differences. For example, the smallest of the three urban systems studied, System C, included a somewhat wider range of grades in the elementary school than did the largest system, System A.

Other system differences are discussed, in more detail, in the next section of this report. During the course of compiling the raw data from the sample and transferring this information to the computer cards, it was noticed by the investigator that one of the systems appeared to have more pupils in each of its schools than did either of the other two systems. The analysis of data, as has been reported, revealed a significant correlational relationship between the "Number of Pupils" variable and the OSQ Score. The decision was therefore made to relate to the OSQ Scores,

on a system basis, the "Number of Pupils" variable and any other demographic characteristic which had already illustrated a similarly significant functional relationship with the observed degree of bureaucratization. As such investigations had not been initially intended (i.e. stated in terms of sub-problems and hypotheses prior to the analysis of data) they were conducted as a posteriori tests rather than a priori tests.

III. ANALYSIS OF THE ORGANIZATIONAL STRUCTURE QUESTIONNAIRE ON THE BASIS OF SCHOOL SYSTEMS

Preliminary Analysis

Findings. An analysis of variance of the Organizational Structure Questionnaire Score, with schools grouped on the basis of school systems (Table XLIV), revealed that significant differences beyond the 0.01 level existed among the three urban systems with respect to the OSQ Score. A follow-up analysis of the probabilities of significant differences among ordered means on the OSQ Score with schools again grouped on the basis of system (Table XL) indicated that System A's OSQ Scores were significantly greater than those of either System B or System C. These latter two systems, both smaller than A, did not differ significantly in their OSQ Scores.

TABLE XLIV
ANALYSIS OF VARIANCE OF THE ORGANIZATIONAL STRUCTURE
QUESTIONNAIRE SCORE WITH SCHOOLS GROUPED ON THE
BASIS OF SCHOOL SYSTEMS
(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	73920.25	2	16.67	0.00
Within	4433.14	39		

TABLE XLV

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE ORGANIZATIONAL STRUCTURE
 QUESTIONNAIRE SCORE WITH SCHOOLS GROUPED
 ON THE BASIS OF SCHOOL SYSTEMS
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	A	B	C
System A = 1145.36			
	C	0.00	0.97
System B = 1019.64			
	B	0.00	-
System C = 1019.36			
	A	-	

Discussion. Robinson (7:145), basing his comments on those of Oswald Hall (4:110-111) stated:

. . . the school operates within the framework of larger bureaucracies. The school district is a bureaucracy with its attendant officials, rules, et cetera; each contributing in some way to the degree and kind of bureaucratization found in each school in the district. In addition, all schools in all districts are influenced by the bureaucracy of the provincial department of education. Its influence is undoubtedly wide as witnessed by the many bureaucratic directives issuing from provincial departments.

At first glance the results of the analysis of variance and the summary of significant differences on ordered means appear to be merely a question of the size of the system. However, the difference in size between Systems B and C was quite comparable to that which existed between A and B. That is, barring the possibility of threshold effects, if the difference were attributable to system size alone then Systems B and C also should have approached significant differences with respect to OSQ Scores. Therefore, while the size of the "larger bureaucracies" to which Robinson and Hall referred well may be a major determining factor, the effects of the school-level variables cannot be ignored. Consequently those principal-staff-school scores and characteristics, which were found earlier in this study to correlate significantly with the OSQ Score, require comparison on a system basis.

Analysis of Selected Principal-School Scores and Characteristics

There were three principal-school scores and characteristics which correlated significantly with the OSQ Score (Table XXVII, page 150), discriminated between degrees of bureaucratization (Tables XXXIV, page 164, XXIX, page 154, and XXXVI, page 168), and at the same time were significant predictors of the OSQ Score (Table XXXVII, page 170): the Number of Pupils; The Principal's Organizational Structure Score (POSS); the Number of Full-Time Non-Professional Office Staff.

Findings concerning "The Number of Pupils." A summary of probabilities of significant differences among ordered means on the "Number of Pupils" with schools grouped on the basis of system (Table XLVI), revealed: System A had significantly more pupils in each school than either of System B or System C; these latter two systems did not differ significantly with respect to the number of pupils in each school.

Discussion concerning "The Number of Pupils." As discussed in detail earlier (supra pp. 84-85), the schools sampled from each system were restricted to a narrow range of size on the basis of the number of staff. Until each principal, on the instrument provided, declared the number

TABLE XLVI

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF PUPILS" PER SCHOOL WITH
 SCHOOLS GROUPED ON THE BASIS OF SCHOOL SYSTEMS
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	A	B	C
System A = 788.00			
	C	0.00	0.12
System B = 584.93			
	B	0.00	-
System C = 528.71			
	A	-	-

of regular-class pupils registered in his school there was no way of predetermining the "pupil" factor other than to assume that the pupil-to-teacher ratios would be comparable. From Table XLVII it can be seen that no significant differences existed among the three systems with respect to the number of staff. As in earlier discussion (supra pp. 163-167) this points toward the pupil-teacher ratio as an important determinant of the degree of bureaucratization. Based upon the respective ordered means, and taken to the nearest round number, each system's pupil-to-teacher ratio was as follows: System A = 38 pupils per teacher; System B = 28 pupils per teacher; System C = 26 pupils per teacher. These ratios, both in terms of the differences and the direction, are noticeably parallel to the comparisons of the degrees of bureaucratization shown in Table XLV, page 190.

Findings concerning the POSS. As the Principal's Organizational Structure Score was one of this study's "major" scores, an analysis of variance was first conducted. This was done on the POSS with schools grouped on the basis of system (Table XLVIII, page 196). It revealed that significant differences existed among the three systems with respect to the POSS. A follow-up analysis was made of the probabilities of significant differences among ordered means on the POSS with schools again grouped on the basis of system (Table XLIX, page 197). This indicated that, as with

TABLE XLVII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF STAFF" PER SCHOOL WITH
 SCHOOLS GROUPED ON THE BASIS OF SCHOOL SYSTEMS
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	B	A	C
System B = 21.21			
	C	0.21	0.46
System A = 20.64			
	A	0.56	-
System C = 19.93			
	B	-	-

TABLE XLVIII

ANALYSIS OF VARIANCE OF THE PRINCIPAL'S ORGANIZATIONAL
STRUCTURE SCORE WITH SCHOOLS GROUPED ON THE BASIS OF
SCHOOL SYSTEMS

(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	1044.02	2	4.86	0.01
Within	214.73	39		

TABLE XLIX

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
ORDERED MEANS ON THE POSS WITH SCHOOLS GROUPED ON THE
BASIS OF SCHOOL SYSTEMS

(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	A	C	B
System A = 152.50			
	B	0.00	0.47
System C = 140.00			
	C	0.02	-
System B = 135.93			
	A	-	-

the OSQ Score and the "Number of Pupils," System A's POSS'es were significantly greater than those of either System B or System C. The principals in the latter two systems did not differ significantly with respect to the degree to which they preferred a bureaucratic organizational structure.

Discussion concerning the POSS. Despite System C having a larger POSS than System B, these results bear a striking similarity to those presented in Table XXIX, page 154. This latter table was made up of the ordered means on the POSS with the schools grouped on the basis of the OSQ Scores. The close parallel between the means of the POSS for the Upper, Middle and Lower Groups in Table XXIX and those of Systems A, B and C in Table XLIX, would suggest the possibility that a strong system influence had been present in the composition of the Upper, Middle and Lower Groups.

Findings concerning "The Number of Full-Time Non-Professional Office Staff." A summary of significant differences among ordered means on this variable with the schools grouped on the basis of system (Table L) revealed: System A and System B both had significantly more full-time office staff than System C, but did not differ significantly from each other in this particular respect.

TABLE L

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE "NUMBER OF OFFICE STAFF" WITH
 SCHOOLS GROUPED ON THE BASIS OF SCHOOL SYSTEMS
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	A	B	C
System A = 1.14			
	C	0.00	0.00
System B = 0.93	B	0.07	-
System C = 0.00	A	-	-

Discussion concerning "The Number of Full-Time Non-Professional Office Staff." Virtually all of the schools sampled in both System A and System B had one full-time office employee. System C, the smallest of the three systems, was notable in that none of the schools sampled had any full-time office help. In view of the pronounced similarity between Systems B and C with respect to such variables as the pupil-teacher ratio and the POSS, the difference concerning office help may be attributable to a difference in board policy between the two systems.

Analysis of Selected Staff-School Scores and Characteristics

There were three staff-school scores and characteristics which correlated significantly with the OSQ Score (Table XXX, page 156), discriminated between degrees of bureaucratization (Table XXXII, page 160; Table XLI, page 181; and Table XL, page 179), and at the same time were significant predictors of the OSQ Score (Table XLII, page 184): Staff Organizational Structure Score (SOSS); Subject Specialty; Years of Academic Preparation.

Findings concerning the SOSS. As the Staff Organizational Structure Score was one of this study's "major" scores an analysis of variance was done on it with the schools grouped on the basis of system (Table LI). This revealed a significant difference, beyond the 0.01 level,

TABLE LI

ANALYSIS OF VARIANCE OF THE STAFF ORGANIZATIONAL STRUCTURE

SCORE WITH SCHOOLS GROUPED ON THE BASIS OF SYSTEM

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 98 PER SYSTEM)

Source	Mean Square	df	F	p
Between	14266.50	2	7.44	0.00
Within	1917.12	39		

among the systems on the SOSS. An analysis of the probabilities of significant differences among ordered means on the SOSS, with schools again grouped on the basis of system (Table LII), disclosed that: the school staffs in System A wanted significantly more bureaucratization than those in Systems B and C; the school staffs in System B wanted significantly more bureaucratization than those in System C.

Discussion concerning the SOSS. The results of these system comparisons are parallel, in magnitude, order and direction, with those presented in Table XXI, page 158, and Table XXXII, page 160. These two tables represented the analyses of variance and ordered means, on the SOSS, of the Upper, Middle and Lower groups of schools, grouped on the basis of the OSQ Score. The similarities between Systems A, B and C and the Upper, Middle and Lower Groups (on Tables XXXI and XXXII) would suggest the possibility that a strong system influence had been present in these latter results. However, in view of the strength of the SOSS as a predictor of the degree of bureaucratization (Table XLII, page 184), and in view of the virtually identical degrees of bureaucratization between Systems B and C (Table XLV, page 190), one would have suspected that Systems B and C would have been more alike with respect to their Staff Organizational Structure Scores.

TABLE LII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
ORDERED MEANS ON THE SOSS WITH SCHOOLS GROUPED ON THE
BASIS OF SYSTEM

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 98 PER SYSTEM)

Means	t-Prime Two-Tail Probabilities		
	A	B	C
System A = 1020.43			
	C	0.00	0.00
System B = 996.57	B	0.00	-
System C = 957.21	A	-	-

Findings concerning "Subject Specialty, Yes or No."

A chi-square test was made of the ordered system totals of the number of staff "teaching" or "not teaching" on a subject basis (Table LIII). This variable was designed to determine the number of elementary school teachers in the sample who taught a subject specialty to several other classes in addition to teaching most of the subjects with their own "home-room" classes. The analysis indicated that: System A had significantly more teachers involved with a subject specialty than did Systems B or C; System C had significantly more "subject specialty" teachers than did System B.

Discussion concerning "Subject Specialty, Yes or No."

Based on earlier analyses (Table XLI, page 181) and the literature (supra pp. 28-29) it is not surprising to find that the largest system should display more specialization of teacher resources than Systems B and C. Indeed, with just less than forty per cent of the System A teachers indicating that they taught a subject specialty to several other classes in addition to most of the subjects with their "home-room" class, System A obviously has moved a considerable way toward the specialization of function. The difference between Systems B and C, however, would suggest that "specialization" is a matter of deliberate central office policy rather than individual school policy. That is, if

TABLE LIII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED TOTALS ON THE "SUBJECT SPECIALTY (YES OR NO)"
 DEMOGRAPHIC VARIABLE WITH SCHOOLS GROUPED ON THE
 BASIS OF SYSTEM

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 98 PER SYSTEM)

Totals	Chi-Square Probabilities of Difference		
System A: YES = 40; NO = 58	A	C	B
System C: YES = 22; NO = 76	B	0.00	0.02
System B: YES = 10; NO = 88	C	0.01	-
	A	-	-

specialization were strictly a matter of system size then the relative positions of Systems B and C should have been reversed with respect to the degree of specialization.

Findings concerning "Academic Preparation." A summary of probabilities of significant differences among ordered means on the "Years of Academic Preparation" of the teacher, with schools grouped on the basis of system (Table LIV), indicated that: both Systems A and B had significantly higher qualified teachers than System C; Systems A and B did not differ significantly with respect to the academic qualifications of their teaching staff.

Discussion concerning "Academic Preparation." To the extent that systems differ with regard to the qualifications of their respective teaching staffs, a number of inter-related factors are probably involved. For example: provincial requirements for the extent of academic preparation required for certification; the "hiring" policies of various systems with respect to salary, teaching conditions and fringe benefits; the cultural, social and higher education amenities available in the urban setting within which the schools are established; provincial and municipal political situations; relative strengths of provincial teacher associations; climate. In sum, it is probable that the larger urban centers have more to offer to the career teacher.

TABLE LIV

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE TEACHER'S "YEARS OF ACADEMIC
 PREPARATION" WITH SCHOOLS GROUPED ON THE BASIS OF
 SCHOOL SYSTEMS

(SCHOOLS = 42 = 3 GROUPS OF 14; TEACHERS = 294 = 98 PER SYSTEM)

Means	t-Prime Two-Tail Probabilities		
	A	B	C
System A = 3.22			
	C	0.00	0.02
System B = 2.92	B	0.08	-
System C = 2.49	A	-	-

III. SUMMARY

Highly significant differences were found to exist among schools with respect to their observed degree of bureaucratization. This demonstrated the effectiveness of the instrument used, the Organizational Structure Questionnaire, which had been developed as an integral part of this study. Based on step-wise regression analyses most of the differences in bureaucratization among the schools were attributed to those scores and characteristics descriptive of the principal and his administrative concerns. By comparison, a minor part of the differences were attributable to staff scores and characteristics. Significant differences among the three school systems sampled were found with respect to the degree of bureaucratization and those principal, staff and school variables most closely related to this bureaucratization. Thus, some of the variance of the OSQ Scores was undoubtedly attributable to system differences.

Highly significant and direct relationships were found to exist between the observed degree of bureaucratization (OSQ Score) and: the extent to which the principal desired a bureaucratic organizational structure (POSS); the degree to which the school staff desired a bureaucratic organizational structure (SOSS).

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CHAPTER VI

RESULTS, ANALYSIS AND DISCUSSION:

PRINCIPAL'S DOGMATISM RATING

I. INTRODUCTION

The analyses with respect to the Dogmatism Rating which were most pertinent to this study have already been reported. The investigation of the Dogmatism Rating as it concerned the Principal's Communication Rating was discussed (supra pp. 112-117) and summarized (Table VIII, page 103; Table XIII, page 111; Table XIV, page 114; Table XV, page 118) in Chapter IV. The investigation of the Dogmatism Rating as it concerned the Organizational Structure Score was discussed (supra pp. 175-176) and summarized (Table XXVII, page 150; Table XXXVII, page 170; Table XXXVIII, page 173) in Chapter V. This present chapter, therefore, has proceeded with a posteriori investigations of possible relationships between the Dogmatism Rating and certain principal-staff-school demographic variables.

II. FURTHER INVESTIGATION OF THE PRINCIPAL'S DOGMATISM RATING

Findings and Discussion Concerning Correlational Relationships

In Tables LV and LVI it can be seen that the Principal's Dogmatism Rating did not correlate significantly with any of the principal-staff-school scores or characteristics. Thus not only did the Dogmatism Rating fail to correlate with the Communication Rating and the OSQ Score, as discussed in Chapters IV and V, but it failed to correlate with anything else. It was not surprising, therefore, to find that step-wise regresssion analyses of the Dogmatism Rating failed to produce a single significant predictor proceeding from any of the obtained scores or demographic variables included within the research data.

It had been hoped that the Dogmatism Rating (i.e. the Dogmatism Scale), as a comparatively well-tested instrument, would demonstrate those correlational links with both communication and organizational structure that were suggested in the literature (supra pp. 40-43). That is, in view of the entirely new instruments used in the present study, it was hoped that the Dogmatism Rating might act as something of an additional yardstick by which to judge the results of the Principal's Communication Rating and the Organizational Structure Questionnaire Score. That it did not may be due to one or all of several potential reasons. For example*: (1) the Dogmatism Scale might be more

*These reasons should be regarded as an illustrative summary rather than an exhaustive one. Each was discussed in more detail earlier in this study (supra pp. 115-116, 40-41).

TABLE LV

PRODUCT-MOMENT CORRELATIONS OF PRINCIPAL-SCHOOL SCORES AND
CHARACTERISTICS AND MAJOR SCORES WITH PRINCIPAL'S
DOGMATISM RATING

(SCHOOLS = 42; PRINCIPALS = 42)

Variable Number	Description	Product-Moment Correlation	
		r	r_{pbi}
1 ^a	Sex		0.00
2 ^a	Marital Status		-0.11
3	Age	0.22	
4	Years of Teaching Experience	0.16	
5	Years of Academic Preparation	-0.13	
6 ^a	Graduate Degree (Yes or No)		-0.06
7	Years of Administrative Experience	0.22	
8	Years in Present Position	0.05	
9	No. of Teaching Periods Per Week	-0.09	
10	No. of Floors in the School	-0.02	
11	No. of Classrooms	-0.02	
12	No. of Classrooms on Office Floor	0.06	
13	Number of Pupils	0.03	

TABLE LV (continued)

Variable Number	Description	Product-Moment Correlation	
		r	r_{pbi}
14	Number of Staff	0.07	
15	Number of Vice-Principals	0.03	
16	Number of Full-Time Office Help	0.02	
17	Number of Part-Time Office Help	-0.09	
18	Socio-Economic Status of Area Served by the School	-0.11	
19	Major Medium of Communica- tion	-0.20	
20	POSS	0.13	
21	SOSS	-0.14	
22	Principal's Communication Rating	0.06	
23	School's Congruency Score	0.00	
24	School's Organizational Structure Question- naire (OSQ) Score	-0.22	

^aPoint-biserial correlations

$r_{.05}(df=40)$, two-tail $\geq$ 0.304

TABLE LVI

PRODUCT-MOMENT CORRELATIONS OF STAFF-SCHOOL DEMOGRAPHIC
VARIABLES WITH PRINCIPAL'S DOGMATISM RATING

(SCHOOLS = 42; TEACHERS = 294 = 7 PER SCHOOL)

Variable Number	Description	Product-Moment Correlation	
		r	r _{pbi}
1 ^a	Sex		0.00
2 ^a	Marital Status		-0.11
3	Age	0.08	
4	Years of Teaching Experience	0.05	
5	Years of Academic Preparation	0.06	
6 ^a	Degree (Yes or No)		0.07
7	Grade Taught	0.06	
8	Subject Specialty (Yes or No)		-0.01
9	Years Teaching in This School	0.06	
10	Years Teaching With This Principal	-0.03	
11 ^a	In Same Building as Office (Yes or No)		0.09
12 ^a	On Same Floor as Office (Yes or No)		0.00
13	Relative Distance From Office	-0.00	

^aPoint-biserial correlations

r_{.05}(df=292), two-tail $\geq$ 0.113

appropriately used with the reception phase of communication than the transmission phase, (2) the sample of school principals might have been sufficiently homogeneous as to have restricted the range of scores to the extent of precluding significant correlations, and (3) the influences of personal variables upon behavior must operate within the prescribed boundaries of the socially defined role, such as the principalship, of the individual.

Findings and Discussion Concerning School System Comparisons

An analysis of variance (Table LVII) and a summary of probabilities of significant differences on ordered means (Table LVIII) both indicated that no significant differences existed among the three urban systems with respect to the Principal's Dogmatism Rating.

III. SUMMARY

It was found that the Principal's Dogmatism Rating did not significantly correlate with any of the scores, characteristics and other variables relevant to the present study, nor were any of these elements significantly predictive of the Dogmatism Rating. There were no significant differences among the principals sampled, from the three urban systems, with respect to the Principal's Dogmatism Rating.

TABLE LVII

ANALYSIS OF VARIANCE OF THE PRINCIPAL'S DOGMATISM RATING

WITH SCHOOLS GROUPED ON THE BASIS OF SCHOOL SYSTEMS

(SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Source	Mean Square	df	F	p
Between	4.95	2	0.10	0.91
Within	49.95	39		

TABLE LVIII

SUMMARY OF PROBABILITIES OF SIGNIFICANT DIFFERENCES AMONG
 ORDERED MEANS ON THE PRINCIPAL'S DOGMATISM RATING WITH
 SCHOOLS GROUPED ON THE BASIS OF SYSTEM
 (SCHOOLS = 42; 3 GROUPS OF 14 SCHOOLS EACH)

Means	t-Prime Two-Tail Probabilities		
	B	A	C
System B = 47.29			
	C	0.67	0.91
System A = 46.43	A	0.72	-
System C = 46.14	B	-	-

CHAPTER VII

SUMMARY, CONCLUSIONS, SUGGESTIONS FOR FURTHER RESEARCH, AND IMPLICATIONS FOR EDUCATIONAL ADMINISTRATION

I. SUMMARY

The Problem

The central problem of this study was an investigation of the relationships between the degree of bureaucratization of the organizational structure of the school and the extent of the administrative communication, concerning this matter, which occurred within these schools.

In addition, investigations were made of the following relationships: between the extent to which principals and teachers desired a bureaucratic organizational structure and the extent of administrative communication, concerning this matter, which occurred in the schools; between the extent to which principals and teachers desired a bureaucratic organizational structure and the degree of bureaucratization observed in the school; between the extent to which principals and teachers desired a bureaucratic organizational structure and their degree of opinion congruency on this matter; between this degree of congruency between principals and teachers on the matter of organizational structure and, respectively, the extent of administrative

communication and the degree of bureaucratization.

Finally, an investigation was made of the relationships between the principal's degree of dogmatism and, respectively, the observed degree of bureaucratization and the extent of administrative communication concerning organizational structure.

Analysis of the Problem

A considerable number of writers in the fields of sociology, social psychology and administration (Newcomb, Ackoff, Knezevich, Thayer, Dorsey, Barnard, Davies, Green, Redmond, March, Simon) have underscored the importance of communication with respect to the structural characteristics of social organizations. Others (March, Simon, Etzioni, Guetzkow, Applewhite, Bidwell) have pointed out the almost complete lack of empirical evidence relevant to this assumed functional relationship. This lack of empirical evidence was indicated as true of virtually the whole field of organizational research not just that portion limited to the study of the school.

The applicability of Weber's bureaucratic model to the organizational structure of the school has been investigated by Anderson, MacKay and Robinson and discussed at length on more theoretical grounds by Bidwell and others. The convergence, with respect to bureaucratized systems of

authority, between Weber's bureaucratic model of organizational structure and Barnard's communication-oriented model of organizational structure has been delineated by Hopkins. A technique for empirically determining the extent of administrative communication in the school context has been devised by Benevento. In this it is assumed that the extent to which the teachers are aware of the opinions of their principal on a subject (e.g. organizational structure) is an indication of the extent to which the principal has communicated these opinions to that staff. Taken together, these studies and developments pointed the way toward the feasibility of that research which, from the literature, promised to be a significant contributor to the fund of knowledge concerning organization theory. That is, to determine whether the administrative communication occurring in the schools was empirically related to the degree of bureaucratization observed to exist in those schools.

Sub-Problems and the Results of the Testing of Hypotheses

Sub-Problem 1.0 investigated the relationship between the extent of principal-to-staff administrative communication concerning organizational structure and the degree of bureaucratization observed in the schools. It was hypothesized that a direct relationship would exist between these two scores. This hypothesis, 1.1, was not supported.

Sub-Problem 2.0 investigated the relationship between the extent of principal-to-staff administrative communication concerning organizational structure and the degree to which the principals considered a bureaucratic organizational structure to be desirable for their schools. It was hypothesized that there would be a direct relationship between these two scores. This hypothesis, 2.1, was supported.

Sub-Problem 3.0 investigated the relationship between the extent of principal-to-staff administrative communication concerning organizational structure and the degree to which the staff considered a bureaucratic organizational structure to be desirable for their schools. It was hypothesized that a direct relationship would exist between these two scores. This hypothesis, 3.1, was not supported. It was further hypothesized that there would be direct relationships between the school's Congruency Score and, respectively, the extent of principal-to-staff administrative communication and the principal's attitude toward the desirability of a bureaucratic organizational structure. Both of these hypotheses, 3.2 and 3.3, were supported.

Sub-Problem 4.0 investigated the relationship between the respective principal and staff attitudes towards the desirability of the bureaucratic organizational structure

for their schools and the degree of bureaucratization observed in the schools. It was hypothesized that a direct relationship would exist between these scores with respect to both the principal and the staff. Both of these hypotheses, 4.1 and 4.2, were supported.

Sub-Problem 5.0 investigated the relationship between the extent of principal-to-staff administrative communication concerning organizational structure and the principal's degree of dogmatism. It was hypothesized that there would be a direct relationship between these two scores. This hypothesis, 5.1, was not supported. It further was hypothesized that, predicated upon the prior support of earlier hypotheses, a direct relationship would exist between the principal's degree of dogmatism and the degree to which the principal considered a bureaucratic organizational structure to be desirable for the school. This hypothesis, 5.2, was not supported.

Results of Additional Analyses Concerning The Principal's Communication Rating

Highly significant differences were found between schools in the extent to which the principals had communicated to their staffs their opinions concerning the desirability of a bureaucratic organizational structure.

The most significant predictor of the extent of the principal-to-staff administrative communication (i.e. the Principal's Communication Rating) was the extent to which the principals considered a bureaucratic organizational structure as desirable for their schools (i.e. the POSS). In total, some eleven predictors proceeding from principal-school scores and characteristics accounted for significant amounts of the variation in the communication scores.

Proceeding from staff-school scores and characteristics, the most significant predictor of the extent of principal-to-staff administrative communication (i.e. the Principal's Communication Rating) was the extent to which the staff agreed with the principal concerning the desirability of a bureaucratic organizational structure (i.e. School Congruency Score). In total, some seven staff-school variables accounted for significant amounts of the variation in the communication scores.

No significant differences were found among the three urban school systems sampled with respect to the Principal's Communication Rating.

Results of Additional Analyses Concerning The Organizational Structure Questionnaire Score

Highly significant differences were found between

schools in the observed degree of bureaucratization (i.e. OSQ Scores).

Significant direct relationships were found between the observed degree of bureaucratization and the number of pupils in the school, but not with the number of staff. This led to the conclusion that the ratio between the number of pupils and the number of staff could be functionally related to the observed degree of bureaucratization.

The most significant predictor of the observed degree of bureaucratization was the number of pupils in the school. In total, some eleven predictors proceeding from principal-school scores and characteristics accounted for significant amounts of the variance in the Organizational Structure Scores.

Proceeding from staff-school scores and characteristics, the most significant predictor of the observed degree of bureaucratization was the extent to which the staff considered a bureaucratic organizational structure as being desirable in the school (i.e. the SOSS). In total, some seven staff-school variables accounted for significant amounts of the variation in the Organizational Structure Questionnaire Scores.

Highly significant differences were found among the

three urban school systems sampled with respect to the observed degree of bureaucratization of their schools. The schools of the largest of the three systems demonstrated significantly more bureaucratization than the schools in either of the other two systems. These latter two systems did not differ significantly from each other with respect to the degree of bureaucratization of their schools. Similar differences were found among the three systems with respect to the number of pupils in the schools but not with respect to the size of the school staffs. This again suggested the possibility of the presence of a pupil-to-teacher ratio effect.

Significant differences, similar in proportion and direction to the observed degrees of bureaucratization, were found among the three systems with respect to the extent to which their principals considered a bureaucratic organizational structure to be desirable (i.e. the POSS).

Highly significant differences were found among the three systems with respect to the extent to which their school staffs considered a bureaucratic organizational structure to be desirable (i.e. the SOSS); the larger the system the higher the score.

Highly significant differences were found among the three systems concerning the number of teachers in the

elementary schools who taught a subject specialty. Both the largest and the smallest systems demonstrated significantly more teacher specialization than did the intermediate system.

Results of Additional Analyses Concerning the Principal's Dogmatism Rating

The principal's degree of dogmatism did not correlate significantly with any of the other scores, characteristics or other variables proceeding from the research data.

II. CONCLUSIONS

Instrumentation

As traced in Chapter III of this study (supra pp. 60-73), the instrument developed to measure the degree of bureaucratization observed to exist in the schools was the Organizational Structure Questionnaire. It was developed prior to the actual gathering of the data and refined as the initial stage of the analysis of the research data. The final uni-dimensional instrument consisted of forty-five items retained from the seventy items submitted to the sample.

From this "parental" instrument the Principal's Organizational Structure Opinion Scale and the Staff Organizational Structure Opinion Scale were developed through

modifications in order to use and refine the measurement techniques used by Benevento (1). These two instruments were intended to measure, respectively, the extent to which the principal considered a bureaucratic organizational structure to be desirable (the POSS) and the extent to which the staff considered a bureaucratic organizational structure to be desirable (the SOSS). From these, in turn, were derived the extent of administrative communication between principal and staff (the Principal's Communication Rating) and the extent of agreement between principal and staff concerning the desirability of a bureaucratic organizational structure (the School's Congruency Score).

In this study the Dogmatism Scale was called the Principal's General Opinion Scale and the resulting score was referred to as the Principal's Dogmatism Rating. The Dogmatism Scale was a peripheral element of the present study and, consequently, may have been used in a less precise manner than was intended by Rokeach.

Communication

One of the more significant developments in this study was the refinement and extension of the technique developed by Benevento (1) to measure the extent of principal-to-staff communication. The efforts of the present

study determined that schools do differ significantly with respect to the extent of their principal's administrative communication concerning organizational structure. The inability to measure communication empirically within the context of the formal organization was mentioned many times in the literature as the cause of one of organization theory's knowledge vacuums.

Another significant conclusion was that the more desirable the principal considers a bureaucratic organizational structure to be the more extensive his communication on this matter and the more extensive his communication the more his staff agrees with him. However, this amount of communication does not affect the actual degree of bureaucratization. This suggests, as was supported by the analysis of the Communication Rating and the OSQ Scores on a school system basis, that while the extent of communication may be more of an individual principal matter, the actual degree of bureaucratization may be largely out of the hands of the individual schools and more the consequence of central office policies.

The only demographic variable which correlated significantly with the Communication Rating indicated that those teachers who have been with a principal for less time, regardless of their previous academic preparation or teach-

ing experience, have been made more aware of the opinions of the principal concerning organizational structure.

Organizational Structure

This study demonstrated that an uni-dimensional instrument, focusing upon hierarchical authority, possessed certain advantages over previous multi-dimensional instruments. It was highly discriminatory; it was able to account for a very substantial percentage of the variation in the observed degree of bureaucratization of the schools; and, at the same time, it was able to avoid many of the statistical inconveniences of negatively correlated sub-scores.

One of the important findings was that the degree of observed bureaucratization was significantly and positively correlated with the extent of both the principal's (POSS) and staff's (SOSS) desire for a bureaucratic organizational structure.

An analysis of the size factors, the number of pupils and the number of staff, led to the most important conclusion in the study with respect to the observed degree of bureaucratization. That is, with the schools grouped on either a bureaucracy score basis or a school system basis, the number of pupils was the key to correlational and discriminatory variable concerning the observed degree of

bureaucratization. At the same time no significant differences existed with respect to the number of staff. The implication was that the pupil-to-teacher-ratio may be a major determinant of the extent of bureaucratization that will occur in a school. This ratio is undoubtedly more a reflection of the system's policy than the individual policy of each school. It is very likely that this need for more control because of the higher ratio of pupils per teacher also accounts for the strong POSS and SOSS correlations with the observed degree of bureaucratization.

Other variables, which were strongly correlational and discriminatory with respect to the observed degree of bureaucratization, also indicated the probability of system rather than individual school policy: the number of full- or part-time office staff employed in the school; the extent of teachers' subject specialization at the elementary school level; the extent of the academic preparation of the staff. Only the latter seemed to be directly related to the size of the system.

Dogmatism

An important conclusion was that, for this sample, the Principal's Organizational Structure Opinion Scale proved to be a more effective instrument for determining the

attitude of the principal toward hierarchical authority than was the Dogmatism Scale. It was also concluded, on the basis of the sample, that the Dogmatism Scale probably holds more relevance for the reception aspect of the communicative process than it does for the transmission aspect.

III. FURTHER RESEARCH

All three of the Organizational Structure Questionnaire, the Principal's Organizational Structure Opinion Scale and the Staff Organizational Structure Opinion Scale--separately or in combination--promise to be useful instruments for additional research into the organizational structure of the school whether remaining at the elementary school level or moving into the other grade levels.

One area of inquiry which immediately suggests itself is that of the school district or division. Considerable evidence was forthcoming from this present study which pointed to the observed degree of bureaucratization of the schools as a consequence of central office policies. Thus the Organizational Structure Questionnaire could be adapted to measure bureaucracy more specifically at the district level and the Principal and Staff Organizational Structure Opinion Scales could be adapted in order to determine the relevant opinions of superintendents, school board members and other central office personnel.

The constructs of Weber and Barnard converge with respect to the bureaucratic authority structure. At this point both assume the existence of a functional relationship between this structure and the administrative communication which occurs therein. The almost complete acceptance of this assumed relationship in the literature without the benefit of empirical proof remains a notable flaw in organization theory. The technique, from which flows the Communication Rating, needs to be further developed and refined in order to tap the actual process of communication as well as its extent. For example, this technique could be used to measure the extent of communication between individuals having different functions within the organizational context and from this the strengths of the various channels taken by administrative communication might be determined.

It should also prove interesting to use this measurement technique to examine the upward flow of communication. This could be combined with various methods, such as House's (2), for determining the influential personnel in the school situation. One could hypothesize that the greater the flow of information from a particular individual to the principal the greater the influence of that individual as compared to other teachers in the school.

Work needs to be done on determining the direction of

the relationship between the POSS and the OSQ Score. In view of the lack of relationship between the Communication Rating and the OSQ Score it would seem that the principal can, at least through communication, do little to influence the actual degree of bureaucratization in his school. Is the situation, then, that the principals (and possibly the staff, too) rationalize themselves into accepting bureaucratization where this has been imposed by conditions perhaps beyond their control?

Another interesting adaptation of the Organizational Structure Score and the Staff Organizational Structure Opinion Scale would be to aim their items at the student level. This should be possible for the upper elementary grades as well as the secondary schools. These scores could then be usefully compared with the results of such other instruments as those devised to measure the extent of "client" alienation.

Finally the POSS might fruitfully be compared with other possible measures of principals' attitudes. In view of the failure of the Dogmatism Scale to correlate with the POSS it would prove interesting to attempt the same sort of comparison with the F-Scale (3:416-417). This purports to measure attitudes toward authority. Consequently one could hypothesize a correlational relationship between its score

and the POSS.

IV. CONCLUDING STATEMENT: IMPLICATIONS FOR EDUCATIONAL ADMINISTRATION

There are several facts which should be considered with respect to judging the implications and values of this study's contribution to the fund of knowledge of educational administration.

First, the study developed three instruments, comprehending five scores, which hold considerable promise for future research on organizational structure and administrative communication within the context of the formal organization.

Second, the study indicated the possibility that the pupil-to-teacher ratio is a major determinant of a school's observed degree of bureaucratization; a ratio which is probably more a reflection of central office policy than the policy of an individual school.

Third, the study indicated to those concerned with developments in elementary education that even though the temporal dimension is still the basic method used to divide teacher labor at the elementary school level, there is considerable evidence to suggest that at least some urban systems are beginning to move toward the division of labor

on the basis of the differentiation of the subject to be taught.

Fourth, the study indicated to principals that the extent of their administrative communication concerning the desirability of a bureaucratic organizational structure is significantly more useful in gaining the agreement of the staff on this matter than in achieving a more bureaucratic structure.

Fifth, the study indicated to researchers that many additional questions need to be asked concerning the widely accepted but still unproven functional relationship between the bureaucratic authority structure of a formal organization and the administrative communication that occurs therein.

In sum, all of these points attest to the following: the importance of an understanding, on the part of teachers, principals and central office personnel, of the implications of the bureaucratization of the organizational structure of the school; the need for, and importance of, further research concerning both administrative communication and organizational structure.

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APPENDICES

APPENDIX A

BACKGROUND DATA

In order to guarantee the absolute anonymity of those teachers responding to this Questionnaire the following measures will be employed: you are not required to place your name on the Questionnaire; the analysis of data will be done through the use of a computer; upon the conclusion of this analysis information concerning the places of origin of the data will be destroyed so that while it will be known from what city the information comes there will be no possible way in which it can be traced back to particular schools or the teachers therein.

In view of this guaranteed anonymity you are requested to answer all questions--complete information is essential to the success of the present study.

1. Sex: Male, Female
(circle one)
2. Marital Status: Single, Married, Widowed, Divorced
(circle one)
3. Age (last birthday): 25 or under, 26-30, 31-35, 36-40,
41-45, 46-50, 51-55, 56-60,
61 or over. (circle one)
4. Total number of school years of full-time teaching
experience (including the present school year):
1, 2, 3-4, 5-7, 8-11, 12-16, 17-21, 22-30, 31 or more.
(circle one)
5. Total number of complete years of academic preparation
beyond high school: 1, 2, 3, 4, 5, 6, 7.
(circle one)
6. Special certification or training _____

7. Degree(s) held: _____
Major field of study for each degree: _____

(over)

8. Grade(s) which you teach this year: 1, 2, 3, 4, 5, 6,
7, 8, 9, 10, 11, 12.
(circle those applicable)
9. Subject specialty (if applicable): _____

10. Total number of years taught in this school (including
present school year): 1, 2, 3, 4-5, 6-8, 9-12, 13-17,
18 or more. (circle one)
11. Number of years taught in this school (including
present school year) while the present principal has
held this position: 1, 2, 3, 4-5, 6-8, 9-12, 13-17,
18 or more. (circle one)
12. Is your classroom in the same building as the princi-
pal's office? Yes No
(circle one)
- If so, is it on the same floor level?: Yes No
(circle one)
13. How would you classify your classroom, as compared to
other classrooms in your school, with respect to
walking distance from the principal's office?:
- very near near average far very far
(circle one)

THE ORGANIZATIONAL STRUCTURE
QUESTIONNAIRE

ALL INFORMATION IS STRICTLY CONFIDENTIAL AND WILL BE USED
FOR EDUCATIONAL RESEARCH PURPOSES ONLY

DEPARTMENT OF EDUCATIONAL ADMINISTRATION
UNIVERSITY OF ALBERTA
EDMONTON
1966

DIRECTIONS:

In this Questionnaire you are asked to indicate the extent to which certain organizational characteristics are present in your school.

There are five possible answers for each statement. They are:

Always True (A)	Seldom True (S)
Occasionally True (O)	
Frequently True (F)	Never True (N)

For each statement CIRCLE the answer which you feel comes closest to describing the way your present school is organized.

- | | | | | | |
|--|---|---|---|---|---|
| 1. The teacher concerned, rather than the principal or one of his assistants, administers the corporal punishment to a student in extreme disciplinary situations. | A | F | O | S | N |
| 2. Teachers are the final authority in deciding promotions or failures of pupils in their classes. | A | F | O | S | N |
| 3. Teachers accept the principal's decision as the final authority on all matters relating to the operation of the school. | A | F | O | S | N |
| 4. Teachers demand respect from pupils. | A | F | O | S | N |
| 5. Standardized procedures are followed to ensure that pupils are punished, without any individual exceptions, for infractions of classroom rules and regulations. | A | F | O | S | N |
| 6. In the event of a discrepancy between the statements of a teacher and a "problem" pupil, the principal in this school gives the pupil the benefit of the doubt. | A | F | O | S | N |

- | | | | | | |
|---|---|---|---|---|---|
| 7. Teachers send requests for custodial services through the principal. | A | F | O | S | N |
| 8. All questions of policy must be referred to the principal for his decision. | A | F | O | S | N |
| 9. Teachers "clear" with the principal and secure his approval before seeing the school system's central office personnel on a school matter. | A | F | O | S | N |
| 10. Teachers are held accountable for all equipment and supplies under their jurisdiction. | A | F | O | S | N |
| 11. Teachers notify the principal personally whenever leaving the building during school hours. | A | F | O | S | N |
| 12. Teachers make arrangements through the principal for scheduling field trips. | A | F | O | S | N |
| 13. Teachers in this school prefer to have the principal make decisions. | A | F | O | S | N |
| 14. Teachers "clear" with the principal any information for public release. | A | F | O | S | N |
| 15. The principal adheres strictly to the policies of the school system. | A | F | O | S | N |
| 16. Teachers requisition equipment and supplies through the principal. | A | F | O | S | N |
| 17. Teachers file requests for a leave of absence through the principal. | A | F | O | S | N |

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| 18. | The teaching staff rather than the principal decides when fire drills can most appropriately be held. | A | F | O | S | N |
| 19. | Teachers prohibit "outsiders" from wandering around in the building without first having received permission at the office. | A | F | O | S | N |
| 20. | Clear-cut standard procedures are used for handling parental complaints about teachers. | A | F | O | S | N |
| 21. | The principal works along with the teachers as if he were one of them. | A | F | O | S | N |
| 22. | The principal influences his teachers more than they influence him. | A | F | O | S | N |
| 23. | The principal makes decisions and then announces them to the staff as final. | A | F | O | S | N |
| 24. | The principal records exceptionally good and exceptionally bad performances of teachers. | A | F | O | S | N |
| 25. | Teachers mark their students according to any standard they wish. | A | F | O | S | N |
| 26. | The principal's control of the faculty results in adherence to school regulations. | A | F | O | S | N |
| 27. | Teachers remove students who are in the building before or after school hours unless they have permission to be there. | A | F | O | S | N |
| 28. | The principal makes decisions without prior consultation with teachers. | A | F | O | S | N |

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|-----|--|---|---|---|---|---|
| 29. | The principal supervises teachers fairly closely in their exercise of authority. | A | F | O | S | N |
| 30. | A definite standard of marking (e.g. Stanine) is used in this school. | A | F | O | S | N |
| 31. | Teachers in this school are closely supervised in their classroom performance. | A | F | O | S | N |
| 32. | The principal or his assistants visit the classroom without consulting the teacher beforehand. | A | F | O | S | N |
| 33. | The principal makes decisions in accordance with the advice he receives from his teachers. | A | F | O | S | N |
| 34. | Teacher contacts with janitors are governed by the principal. | A | F | O | S | N |
| 35. | Teachers punish students in any way they see fit. | A | F | O | S | N |
| 36. | The janitor must check with the principal before accepting an individual teacher's request for custodial services. | A | F | O | S | N |
| 37. | The vice-principal's duties clearly delineate his areas of authority. | A | F | O | S | N |
| 38. | The staff of this school make the decisions about school policy. | A | F | O | S | N |
| 39. | The results of standardized tests (e.g. I.Q.) are made known to all teachers in the school. | A | F | O | S | N |
| 40. | Definite procedures govern the administration of corporal punishment of pupils in our school. | A | F | O | S | N |
| 41. | Arrangements for use of the gymnasium etc. are coordinated through the administration. | A | F | O | S | N |

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|-----|--|---|---|---|---|---|
| 42. | The principal insists that all teachers be in their classrooms at a set time prior to the commencement of class. | A | F | O | S | N |
| 43. | At staff meetings the important decisions are made democratically. | A | F | O | S | N |
| 44. | Supervisory duty rosters are drawn up by the principal or vice-principal. | A | F | O | S | N |
| 45. | Strict operating procedures must be followed. | A | F | O | S | N |
| 46. | The principal in this school stresses the need for teachers to maintain classroom discipline. | A | F | O | S | N |
| 47. | Teachers rigidly enforce rules concerning pupil behavior. | A | F | O | S | N |
| 48. | The principal delegates responsibility for decision-making to the teachers. | A | F | O | S | N |
| 49. | The principal checks to ensure that decisions made at staff meetings are carried out. | A | F | O | S | N |
| 50. | Going through proper channels is stressed. | A | F | O | S | N |
| 51. | Any rules about teachers' arrival and departure times are rigidly enforced. | A | F | O | S | N |
| 52. | Teachers are checked upon for possible violations of procedures or rules. | A | F | O | S | N |
| 53. | Decisions about pupil promotion and placement are made by the teacher. | A | F | O | S | N |
| 54. | There is only one acceptable way of doing things in this school--the administrator's way. | A | F | O | S | N |

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|--|---|---|---|---|---|
| 55. Teachers use standardized record forms when submitting written reports to the principal. | A | F | O | S | N |
| 56. In our school even small matters must be referred to someone superior for a final answer. | A | F | O | S | N |
| 57. A supervised detention room exists in the school for purposes of punishing those students who have violated school rules or regulations. | A | F | O | S | N |
| 58. Any possible decisions concerning the selection of textbooks are made by the principal or his assistant(s) rather than by individual teachers. | A | F | O | S | N |
| 59. Items which teachers want announced to the student body are subject to the principal's prior approval. | A | F | O | S | N |
| 60. Reports of daily pupil attendance must be submitted by teachers to the principal. | A | F | O | S | N |
| 61. Teacher decisions about pupil discipline are subject to the principal's veto. | A | F | O | S | N |
| 62. Teachers must obtain permission from the principal or his assistant(s) in order to gain access to pupil cumulative records. | A | F | O | S | N |
| 63. A teacher can make decisions on his own without reference to the school's manual of rules and regulations. | A | F | O | S | N |
| 64. Agendas for staff meetings are drawn up by the principal or his assistant(s). | A | F | O | S | N |

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|-----|---|---|---|---|---|---|
| 65. | Definite procedures are followed concerning the use of school telephones by non-administrators. | A | F | O | S | N |
| 66. | The principal in this school has more authority over teacher behavior than do the vice-principal(s), department heads, etc. | A | F | O | S | N |
| 67. | The principal makes clear to each staff member his expectations for teacher performance. | A | F | O | S | N |
| 68. | Any decisions teachers make must have a superior's approval. | A | F | O | S | N |
| 69. | Pupils who are late must obtain permission from the office to enter class. | A | F | O | S | N |
| 70. | The school's established procedures are followed even if it means taking longer to get a job done. | A | F | O | S | N |

APPENDIX B

BACKGROUND DATA

In order to guarantee the absolute anonymity of those teachers responding to this Questionnaire the following measures will be employed: you are not required to place your name on the Questionnaire; the analysis of data will be done through the use of a computer; upon the conclusion of this analysis information concerning the places of origin of the data will be destroyed so that while it will be known from what city the information comes there will be no possible way in which it can be traced back to particular schools or the teachers therein.

In view of this guaranteed anonymity you are requested to answer all questions--complete information is essential to the success of the present study.

1. Sex: Male, Female
(circle one)
2. Marital Status: Single, Married, Widowed, Divorced
(circle one)
3. Age (last birthday): 25 or under, 26-30, 31-35, 36-40,
41-45, 46-50, 51-55, 56-60,
61 or over. (circle one)
4. Total number of school years of full-time teaching
experience (including the present school year):
1, 2, 3-4, 5-7, 8-11, 12-16, 17-21, 22-30, 31 or more.
(circle one)
5. Total number of complete years of academic preparation
beyond high school: 1, 2, 3, 4, 5, 6, 7.
(circle one)
6. Special certification or training _____

7. Degree(s) held: _____
Major field of study for each degree: _____

(over)

8. Grade(s) which you teach this year: 1, 2, 3, 4, 5, 6,
7, 8, 9, 10, 11, 12.
(circle those applicable)
9. Subject specialty (if applicable): _____

10. Total number of years taught in this school (including
present school year): 1, 2, 3, 4-5, 6-8, 9-12, 13-17,
18 or more. (circle one)
11. Number of years taught in this school (including
present school year) while the present principal has
held this position: 1, 2, 3, 4-5, 6-8, 9-12, 13-17,
18 or more. (circle one)
12. Is your classroom in the same building as the princi-
pal's office? Yes No
(circle one)
- If so, is it on the same floor level?: Yes No
(circle one)
13. How would you classify your classroom, as compared to
other classrooms in your school, with respect to
walking distance from the principal's office?:
- very near near average far very far
(circle one)

STAFF ORGANIZATIONAL STRUCTURE
OPINION SCALE

ALL INFORMATION IS STRICTLY CONFIDENTIAL AND WILL BE USED
FOR EDUCATIONAL RESEARCH PURPOSES ONLY

DEPARTMENT OF EDUCATIONAL ADMINISTRATION
UNIVERSITY OF ALBERTA
EDMONTON

1966

DIRECTIONS:

In this Questionnaire all teachers are asked to indicate the extent to which they would prefer to see certain organizational characteristics present in their own school. In addition, they are asked to indicate their principal's preference for these same characteristics.

There are five possible answers for each statement. They are:

Strongly Agree (SA)		Disagree (D)
	Indifferent (I)	
Agree (A)		Strongly Disagree (SD)

For each statement draw a diagonal line THROUGH the answer which you feel comes closest to describing the way you believe your present school should be organized. Then, for each statement, CIRCLE the answer which you feel comes closest to describing the way your principal believes your school should be organized. Thus, a complete answer for any one item might take the following form:

~~SA~~ (A) I D SD

1. The teacher concerned, rather than the principal or one of his assistants, should administer the corporal punishment to a student in extreme disciplinary situations. SA A I D SD
2. Teachers should be the final authority in deciding promotions or failures of pupils in their classes. SA A I D SD
3. Teachers should accept the principal's decision as the final authority on all matters relating to the operation of the school. SA A I D SD
4. Teachers should demand respect from pupils. SA A I D SD
5. A school should follow standardized procedures to ensure that pupils are punished, without any individual exceptions, for infractions of classroom rules and regulations. SA A I D SD
6. In the event of a discrepancy between the statements of a teacher and a "problem" pupil, the principal should give the pupil the benefit of the doubt. SA A I D SD
7. Teachers should send requests for custodial services through the principal. SA A I D SD
8. All questions of policy should be referred to the principal for his decision. SA A I D SD
9. Teachers should "clear" with the principal and secure his approval before seeing the school system's central office personnel on a school matter. SA A I D SD

(over)

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|-----|--|----|---|---|---|----|
| 10. | Teachers should be held accountable for all equipment and supplies under their jurisdiction. | SA | A | I | D | SD |
| 11. | Teachers should notify the principal personally whenever leaving the building during school hours. | SA | A | I | D | SD |
| 12. | Teachers should make arrangements through the principal for scheduling field trips. | SA | A | I | D | SD |
| 13. | Teachers should leave the decision-making to the principal. | SA | A | I | D | SD |
| 14. | Teachers should "clear" with the principal any information for public release. | SA | A | I | D | SD |
| 15. | The principal should adhere strictly to the policies of the school system. | SA | A | I | D | SD |
| 16. | Teachers should requisition equipment and supplies through the principal. | SA | A | I | D | SD |
| 17. | Teachers should file requests for a leave of absence through the principal. | SA | A | I | D | SD |
| 18. | The teaching staff, rather than the principal, should decide when fire drills can most appropriately be held. | SA | A | I | D | SD |
| 19. | Teachers should prohibit "outsiders" from wandering around in the building without first having received permission at the office. | SA | A | I | D | SD |
| 20. | There should be clear-cut standard procedures for handling parental complaints about teachers. | SA | A | I | D | SD |
| 21. | The principal should work along with the teachers as if he were one of them. | SA | A | I | D | SD |

22.	The principal should influence his teachers more than they influence him.	SA	A	I	D	SD
23.	The principal should make decisions and then announce them to the staff as final.	SA	A	I	D	SD
24.	The principal should keep a written record of exceptionally good and exceptionally bad performances of teachers.	SA	A	I	D	SD
25.	Teachers should be able to mark their students according to any standard they wish.	SA	A	I	D	SD
26.	The principal's control of the faculty should result in adherence to school regulations.	SA	A	I	D	SD
27.	Teachers should remove students who are in the building before or after school hours unless they have permission to be there.	SA	A	I	D	SD
28.	The principal should make decisions without prior consultation with teachers.	SA	A	I	D	SD
29.	The principal should supervise teachers fairly closely in their exercise of authority.	SA	A	I	D	SD
30.	A definite standard of marking (e.g. Stanine) should be used in this school.	SA	A	I	D	SD
31.	Teachers in this school should be closely supervised in their classroom performance.	SA	A	I	D	SD
32.	The principal or his assistant(s) should be able to visit the classroom without consulting the teacher beforehand.	SA	A	I	D	SD

(over)

33.	The principal should make decisions in accordance with the advice he receives from his teachers.	SA	A	I	D	SD
34.	Teacher contacts with janitors should be governed by the principal.	SA	A	I	D	SD
35.	Teachers should be able to punish students in any way they see fit.	SA	A	I	D	SD
36.	The janitor should check with the principal before accepting an individual teacher's request for custodial services.	SA	A	I	D	SD
37.	The vice-principal should have duties which clearly delineate his areas of authority.	SA	A	I	D	SD
38.	The staff of this school should make the decisions about school policy.	SA	A	I	D	SD
39.	The results of standardized tests (e.g. I.Q.) should be made known to all teachers in the school.	SA	A	I	D	SD
40.	Definite procedures should govern the administration of corporal punishment of pupils in our school.	SA	A	I	D	SD
41.	Arrangements for use of the gymnasium, etc., should be coordinated through the administration.	SA	A	I	D	SD
42.	The principal should insist that all teachers be in their classrooms at a set time prior to the commencement of class.	SA	A	I	D	SD
43.	At staff meetings the important decisions should be made democratically.	SA	A	I	D	SD

44.	Supervisory duty rosters should be drawn up by the principal or vice-principal.	SA	A	I	D	SD
45.	Strict operating procedures should be followed.	SA	A	I	D	SD
46.	A principal should stress the need for teachers to maintain classroom discipline.	SA	A	I	D	SD
47.	Teachers should rigidly enforce rules concerning pupil behavior.	SA	A	I	D	SD
48.	The principal should delegate responsibility for decision making to the teachers.	SA	A	I	D	SD
49.	The principal should check to ensure that decisions made at staff meetings are carried out.	SA	A	I	D	SD
50.	Going through proper channels should be stressed.	SA	A	I	D	SD
51.	Any rules about teachers' arrival and departure times should be rigidly enforced.	SA	A	I	D	SD
52.	Teachers should be checked upon for possible violations of procedures or rules.	SA	A	I	D	SD
53.	Decisions about pupil promotion and placement should be made by the teacher.	SA	A	I	D	SD
54.	There should be only one acceptable way of doing things in a school--the administrator's way.	SA	A	I	D	SD
55.	Teachers should use standardized record forms when submitting written reports to the principal.	SA	A	I	D	SD

(Over)

56. In our school even small matters should be referred to someone superior for a final answer. SA A I D SD
57. A supervised detention room should exist in this school for purposes of punishing those students who have violated school rules or regulations. SA A I D SD
58. Any possible decisions concerning the selection of textbooks should be made by the principal or his assistant(s) rather than by individual teachers. SA A I D SD
59. Items which teachers want announced to the student body should be subject to the principal's prior approval. SA A I D SD
60. Reports of daily pupil attendance should be submitted by teachers to the principal. SA A I D SD
61. The principal should be able to veto teacher decisions about pupil discipline. SA A I D SD
62. Teachers should obtain permission from the principal or his assistant(s) in order to gain access to pupil cumulative records. SA A I D SD
63. A teacher should be able to make decisions on his own without reference to the school's manual of rules and regulations. SA A I D SD
64. Agendas for staff meetings should be drawn up by the principal or his assistant(s). SA A I D SD
65. Definite procedures should be followed concerning the use of school telephones by non-administrators. SA A I D SD

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|-----|--|----|---|---|---|----|
| 66. | The principal should have more authority over teacher behavior than has the vice-principal(s) and department heads, etc. | SA | A | I | D | SD |
| 67. | The principal should make clear to each staff member his expectations for teacher performance. | SA | A | I | D | SD |
| 68. | Any decisions teachers make should require a superior's approval. | SA | A | I | D | SD |
| 69. | Pupils who are late should have to obtain permission from the office in order to enter class. | SA | A | I | D | SD |
| 70. | The school's established procedures should be followed even if it means taking longer to get a job done. | SA | A | I | D | SD |

APPENDIX A

The purpose of this appendix is to provide a detailed description of the data used in the analysis. The data were obtained from the National Longitudinal Survey of the Youth (NLSY), which is a longitudinal survey of the health and behavior of a representative sample of the U.S. population aged 12-17 in 1980. The data were collected from 1980 to 1994, and the sample size was 11,988. The data were obtained from the NLSY database, which is available to researchers at the University of Michigan.

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APPENDIX C

The data were obtained from the NLSY database, which is available to researchers at the University of Michigan.

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BACKGROUND DATA

In order to guarantee the absolute anonymity of those principals responding to this Questionnaire the following measures will be employed: you are not required to place your name on the Questionnaire; the analysis of data will be done through the use of a computer; upon the conclusion of this analysis information concerning the places of origin of the data will be destroyed so that while it will be known from what city the information comes there will be no possible way in which it can be traced back to particular schools or the principals therein.

In view of this guaranteed anonymity you are requested to answer all questions--complete information is essential to the success of the present study.

1. Sex: Male, Female
(circle one)
2. Marital Status: Single, Married, Widowed, Divorced
(circle one)
3. Age (last birthday): 25 or under, 26-30, 31-35, 36-40,
41-45, 46-50, 51-55, 56-60,
61 or over.
(circle one)
4. Total number of school years of full-time teaching
experience: 1, 2, 3-4, 5-7, 8-11, 12-16, 17-21, 22-30,
31 or more. (circle one)
5. Total number of complete years of academic preparation
beyond high school: 1, 2, 3, 4, 5, 6, 7.
(circle one)
6. Special certification or training _____

7. Degree(s) held: _____
Major field of study for each degree: _____

(over)

8. Total number of school years of administrative experience (including the present school year):
1, 2, 3-4, 5-7, 8-11, 12-16, 17-21, 22-30, 31 or more.
(circle one)
9. Number of years in present position (including the present school year): 1, 2, 3, 4-5, 6-8, 9-12, 13-17, 18 or more. (circle one)
10. Your number of teaching periods per week in addition to administrative duties: 0, 1, 2, 3, 4, 5, 6 or more.
(circle one)
11. Grade structure of your present school (i.e. 1-12, 1-9, 7-9 etc.) _____
12. Number of floor levels in your present school (i.e. one-story, two-story, etc.) _____
13. Total number of classrooms used _____
Number of classrooms used on the same floor as your office _____
14. Total number of pupils attending _____
Total number of teachers on staff _____
Number of vice-principals on staff _____
Number of full-time non-professional office help employed (e.g. secretary) _____
Number of part-time non-professional office help employed (e.g. secretary) _____
15. Nature of the socio-economic area served by your school (check one):
Lower-lower class _____
Upper-lower class _____
Lower-middle class _____
Upper-middle class _____
Upper class _____
16. Major medium of communication with staff (check one):
Face-to-face conversations _____
Staff meetings _____
P.A. System _____
Written instructions _____

PRINCIPAL'S ORGANIZATIONAL STRUCTURE
OPINION SCALE

ALL INFORMATION IS STRICTLY CONFIDENTIAL AND WILL BE USED
FOR EDUCATIONAL RESEARCH PURPOSES ONLY

DEPARTMENT OF EDUCATIONAL ADMINISTRATION
UNIVERSITY OF ALBERTA
EDMONTON

1966

DIRECTIONS

In this Questionnaire all principals are asked to indicate the extent to which they would prefer to see certain organizational characteristics present in their own school.

There are five possible answers for each statement. They are:

Strongly Agree (SA)		Disagree (D)
	Indifferent (I)	
Agree (A)		Strongly Disagree (SD)

For each statement CIRCLE the answer which you feel comes closest to describing the way you believe your present school should be organized.

- | | | | | | |
|--|----|---|---|---|----|
| 1. The teacher concerned, rather than the principal or one of his assistants, should administer the corporal punishment to a student in extreme disciplinary situations. | SA | A | I | D | SD |
| 2. Teachers should be the final authority in deciding promotions or failures of pupils in their classes. | SA | A | I | D | SD |
| 3. Teachers should accept the principal's decision as the final authority on all matters relating to the operation of the school. | SA | A | I | D | SD |
| 4. Teachers should demand respect from pupils. | SA | A | I | D | SD |
| 5. A school should follow standardized procedures to ensure that pupils are punished, without any individual exceptions, for infractions of classroom rules and regulations. | SA | A | I | D | SD |
| 6. In the event of a discrepancy between the statements of a teacher and a "problem" pupil, the principal should give the pupil the benefit of the doubt. | SA | A | I | D | SD |
| 7. Teachers should send requests for custodial services through the principal. | SA | A | I | D | SD |
| 8. All questions of policy should be referred to the principal for his decision. | SA | A | I | D | SD |
| 9. Teachers should "clear" with the principal and secure his approval before seeing the school system's central office personnel on a school matter. | SA | A | I | D | SD |

(over)

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|-----|--|----|---|---|---|----|
| 10. | Teachers should be held accountable for all equipment and supplies under their jurisdiction. | SA | A | I | D | SD |
| 11. | Teachers should notify the principal personally whenever leaving the building during school hours. | SA | A | I | D | SD |
| 12. | Teachers should make arrangements through the principal for scheduling field trips. | SA | A | I | D | SD |
| 13. | Teachers should leave the decision-making to the principal. | SA | A | I | D | SD |
| 14. | Teachers should "clear" with the principal any information for public release. | SA | A | I | D | SD |
| 15. | The principal should adhere strictly to the policies of the school system. | SA | A | I | D | SD |
| 16. | Teachers should requisition equipment and supplies through the principal. | SA | A | I | D | SD |
| 17. | Teachers should file requests for a leave of absence through the principal. | SA | A | I | D | SD |
| 18. | The teaching staff, rather than the principal, should decide when fire drills can most appropriately be held. | SA | A | I | D | SD |
| 19. | Teachers should prohibit "outsiders" from wandering around in the building without first having received permission at the office. | SA | A | I | D | SD |
| 20. | There should be clear-cut standard procedures for handling parental complaints about teachers. | SA | A | I | D | SD |
| 21. | The principal should work along with the teachers as if he were one of them. | SA | A | I | D | SD |

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|-----|---|----|---|---|---|----|
| 22. | The principal should influence his teachers more than they influence him. | SA | A | I | D | SD |
| 23. | The principal should make decisions and then announce them to the staff as final. | SA | A | I | D | SD |
| 24. | The principal should keep a written record of exceptionally good and exceptionally bad performances of teachers. | SA | A | I | D | SD |
| 25. | Teachers should be able to mark their students according to any standard they wish. | SA | A | I | D | SD |
| 26. | The principal's control of the faculty should result in adherence to school regulations. | SA | A | I | D | SD |
| 27. | Teachers should remove students who are in the building before or after school hours unless they have permission to be there. | SA | A | I | D | SD |
| 28. | The principal should make decisions without prior consultation with teachers. | SA | A | I | D | SD |
| 29. | The principal should supervise teachers fairly closely in their exercise of authority. | SA | A | I | D | SD |
| 30. | A definite standard of marking (e.g. Stanine) should be used in this school. | SA | A | I | D | SD |
| 31. | Teachers in this school should be closely supervised in their classroom performance. | SA | A | I | D | SD |
| 32. | The principal or his assistant(s) should be able to visit the classroom without consulting the teacher beforehand. | SA | A | I | D | SD |

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| 33. | The principal should make decisions in accordance with the advice he receives from his teachers. | SA | A | I | D | SD |
| 34. | Teacher contacts with janitors should be governed by the principal. | SA | A | I | D | SD |
| 35. | Teachers should be able to punish students in any way they see fit. | SA | A | I | D | SD |
| 36. | The janitor should check with the principal before accepting an individual teacher's request for custodial services. | SA | A | I | D | SD |
| 37. | The vice-principal should have duties which clearly delineate his areas of authority. | SA | A | I | D | SD |
| 38. | The staff of this school should make the decisions about school policy. | SA | A | I | D | SD |
| 39. | The results of standardized tests (e.g. I.Q.) should be made known to all teachers in the school. | SA | A | I | D | SD |
| 40. | Definite procedures should govern the administration of corporal punishment of pupils in our school. | SA | A | I | D | SD |
| 41. | Arrangements for use of the gymnasium, etc., should be coordinated through the administration. | SA | A | I | D | SD |
| 42. | The principal should insist that all teachers be in their classrooms at a set time prior to the commencement of class. | SA | A | I | D | SD |
| 43. | At staff meetings the important decisions should be made democratically. | SA | A | I | D | SD |

44.	Supervisory duty rosters should be drawn up by the principal or vice-principal.	SA	A	I	D	SD
45.	Strict operating procedures should be followed.	SA	A	I	D	SD
46.	A principal should stress the need for teachers to maintain classroom discipline.	SA	A	I	D	SD
47.	Teachers should rigidly enforce rules concerning pupil behavior.	SA	A	I	D	SD
48.	The principal should delegate responsibility for decision making to the teachers.	SA	A	I	D	SD
49.	The principal should check to ensure that decisions made at staff meetings are carried out.	SA	A	I	D	SD
50.	Going through proper channels should be stressed.	SA	A	I	D	SD
51.	Any rules about teachers' arrival and departure times should be rigidly enforced.	SA	A	I	D	SD
52.	Teachers should be checked upon for possible violations of procedures or rules.	SA	A	I	D	SD
53.	Decisions about pupil promotion and placement should be made by the teacher.	SA	A	I	D	SD
54.	There should be only one acceptable way of doing things in a school--the administrator's way.	SA	A	I	D	SD
55.	Teachers should use standardized record forms when submitting written reports to the principal.	SA	A	I	D	SD

(Over)

- | | | | | | | |
|-----|--|----|---|---|---|----|
| 56. | In our school even small matters should be referred to someone superior for a final answer. | SA | A | I | D | SD |
| 57. | A supervised detention room should exist in this school for purposes of punishing those students who have violated school rules or regulations. | SA | A | I | D | SD |
| 58. | Any possible decisions concerning the selection of textbooks should be made by the principal or his assistant(s) rather than by individual teachers. | SA | A | I | D | SD |
| 59. | Items which teachers want announced to the student body should be subject to the principal's prior approval. | SA | A | I | D | SD |
| 60. | Reports of daily pupil attendance should be submitted by teachers to the principal. | SA | A | I | D | SD |
| 61. | The principal should be able to veto teacher decisions about pupil discipline. | SA | A | I | D | SD |
| 62. | Teachers should obtain permission from the principal or his assistant(s) in order to gain access to pupil cumulative records. | SA | A | I | D | SD |
| 63. | A teacher should be able to make decisions on his own without reference to the school's manual of rules and regulations. | SA | A | I | D | SD |
| 64. | Agendas for staff meetings should be drawn up by the principal or his assistant(s). | SA | A | I | D | SD |
| 65. | Definite procedures should be followed concerning the use of school telephones by non-administrators. | SA | A | I | D | SD |

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|-----|--|----|---|---|---|----|
| 66. | The principal should have more authority over teacher behavior than has the vice-principal(s) and department heads, etc. | SA | A | I | D | SD |
| 67. | The principal should make clear to each staff member his expectations for teacher performance. | SA | A | I | D | SD |
| 68. | Any decisions teachers make should require a superior's approval. | SA | A | I | D | SD |
| 69. | Pupils who are late should have to obtain permission from the office in order to enter class. | SA | A | I | D | SD |
| 70. | The school's established procedures should be followed even if it means taking longer to get a job done. | SA | A | I | D | SD |

APPENDIX D

PRINCIPAL'S GENERAL OPINION SCALE

DIRECTIONS:

In this Questionnaire all principals are asked to indicate the extent to which they agree or disagree with certain general opinions.

There are four possible answers for each statement. They are:

Strongly Agree (SA)	Disagree (D)
Agree (A)	Strongly Disagree (SD)

For each general opinion CIRCLE the answer which you feel comes closest to describing your personal belief.

- | | | | | |
|---|----|---|---|----|
| 1. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted, | SA | A | D | SD |
| 2. My blood boils whenever a person stubbornly refuses to admit he's wrong. | SA | A | D | SD |
| 3. There are two kinds of people in this world: those who are for truth and those who are against the truth. | SA | A | D | SD |
| 4. Most people just don't know what's good for them. | SA | A | D | SD |
| 5. Of all the different philosophies which exist in this world there is probably only one which is correct. | SA | A | D | SD |
| 6. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent. | SA | A | D | SD |
| 7. The main thing in life is for a person to want to do something important. | SA | A | D | SD |

(over)

- | | | | | | |
|-----|--|----|---|---|----|
| 8. | I'd like it if I could find someone who would tell me how to solve my personal problems. | SA | A | D | SD |
| 9. | Most of the ideas which get printed nowadays aren't worth the paper they are printed on. | SA | A | D | SD |
| 10. | Man on his own is a helpless and miserable creature. | SA | A | D | SD |
| 11. | It is only when a person devotes himself to an ideal or cause that life becomes meaningful. | SA | A | D | SD |
| 12. | Most people just don't give a "damn" for others. | SA | A | D | SD |
| 13. | To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side. | SA | A | D | SD |
| 14. | It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects. | SA | A | D | SD |
| 15. | The <u>present</u> is all too often full of unhappiness. It is only the <u>future</u> that counts. | SA | A | D | SD |
| 16. | The United States and Russia have just about nothing in common. | SA | A | D | SD |
| 17. | In a discussion I often find it necessary to repeat myself several times to make sure I am being understood. | SA | A | D | SD |
| 18. | While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare. | SA | A | D | SD |

19. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

SA A D SD

20. It is better to be a dead hero than a live coward,

SA A D SD

APPENDIX E

School Organizational Inventory

DEVELOPED BY

D. A. MacKAY

and

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DEPARTMENT OF EDUCATIONAL ADMINISTRATION
UNIVERSITY OF ALBERTA
EDMONTON

1966

Directions:

In this Questionnaire all teachers and administrators are asked to indicate how well each statement describes the organizational characteristics of their own school.

There are five possible answers for each statement. They are:

Always True (AT)

Often True (OFT)

Ocasionally True (OCT)

Seldom True (ST)

Never True (NT)

For each statement circle the answer which you feel comes closest to describing your own school organization.

1.—A person who wants to make his own decisions would quickly become discouraged in this school.	AT	OFT	OCT	ST	NT
2.—There is an overlap in the job responsibilities of the Principal and Vice-Principal.	AT	OFT	OCT	ST	NT
3.—Rules stating when teachers arrive and depart from the building are strictly enforced.	AT	OFT	OCT	ST	NT
4.—The use of a wide variety of teaching methods and materials is encouraged in this school.	AT	OFT	OCT	ST	NT
5.—We are expected to be courteous, but reserved, at all times in our dealings with parents.	AT	OFT	OCT	ST	NT
6.—Promotions are based on how well you are liked.	AT	OFT	OCT	ST	NT
7.—Staff members of this school always get their orders from higher up.	AT	OFT	OCT	ST	NT
8.—Teachers are required to sponsor extra-curricular activities for which they have no suitable background.	AT	OFT	OCT	ST	NT
9.—The time for informal staff get-togethers during the school day is strictly regulated by the administration.	AT	OFT	OCT	ST	NT
10.—In dealing with student discipline problems teachers are encouraged to consider the individual offender, not the offense, in deciding on a suitable punishment.	AT	OFT	OCT	ST	NT
11.—Staff members must possess above-average qualifications before they are placed in this school.	AT	OFT	OCT	ST	NT
12.—Staff members are allowed to do almost as they please in their classroom work.	AT	OFT	OCT	ST	NT
13.—Teachers in this school receive help from the custodial staff in setting up audio-visual equipment for classroom use.	AT	OFT	OCT	ST	NT
14.—The teacher is expected to abide by the spirit of the rules of the school rather than stick to the letter of the rules.	AT	OFT	OCT	ST	NT
15.—We are to follow strict operating procedures at all times.	AT	OFT	OCT	ST	NT
16.—The administration sponsors staff get-togethers.	AT	OFT	OCT	ST	NT
17.—Promotion is not based on personal preferences of the selectors, but on an objective evaluation of teacher capabilities.	AT	OFT	OCT	ST	NT
18.—Nothing is said if you get to school just before roll call or leave right after dismissal occasionally.	AT	OFT	OCT	ST	NT
19.—Going through proper channels is constantly stressed.	AT	OFT	OCT	ST	NT
20.—Teachers are encouraged to become friendly with groups and individuals outside the school.	AT	OFT	OCT	ST	NT
21.—Past teaching experience plays a large part in the assignment of a teacher to this school.	AT	OFT	OCT	ST	NT

22.—Teachers have to do their own typing of stencils for classroom use.	AT	OFT	OCT	ST	NT
23.—There can be little action until an administrator approves a decision.	AT	OFT	OCT	ST	NT
24.—Assignment of teaching duties is made without regard for the teacher's experience or training.	AT	OFT	OCT	ST	NT
25.—The teachers are constantly being checked for rule violations.	AT	OFT	OCT	ST	NT
26.—There isn't much chance for a promotion unless you are "in" with the administration.	AT	OFT	OCT	ST	NT
27.—Teachers who have contact with parents and other citizens are instructed in proper procedures for greeting and talking with them.	AT	OFT	OCT	ST	NT
28.—Many teachers are hired simply because they have attractive personalities.	AT	OFT	OCT	ST	NT
29.—The school has a manual of rules and regulations for teachers to follow.	AT	OFT	OCT	ST	NT
30.—We have to do a lot of paper work which could be done by the school office staff.	AT	OFT	OCT	ST	NT
31.—Each staff member is responsible to an administrator to whom the member regularly reports.	AT	OFT	OCT	ST	NT
32.—In order to get a promotion, you have to "know somebody."	AT	OFT	OCT	ST	NT
33.—The instructional program is departmentalized into specific subject areas with specific teachers assigned.	AT	OFT	OCT	ST	NT
34.—A person can make his own decisions without checking with anyone else.	AT	OFT	OCT	ST	NT
35.—There is only one way to do the job — the Principal's way.	AT	OFT	OCT	ST	NT
36.—In dealing with student behaviour problems the school has standard punishments for standard offenses regardless of the individual involved.	AT	OFT	OCT	ST	NT
37.—Promotions are based entirely on how well a person does his job.	AT	OFT	OCT	ST	NT
38.—I have to ask the principal before I do almost anything	AT	OFT	OCT	ST	NT
39.—No one can get necessary supplies without permission from the principal or vice-principal.	AT	OFT	OCT	ST	NT
40.—Written orders from higher up are followed unquestioningly.	AT	OFT	OCT	ST	NT
41.—The same procedures are to be followed in most situations.	AT	OFT	OCT	ST	NT
42.—Students are treated within the rules of the school, no matter how serious a problem they have.	AT	OFT	OCT	ST	NT
43.—Even small matters have to be referred to someone higher up for a final answer.	AT	OFT	OCT	ST	NT
44.—Teachers are expected not to leave their classroom without permission.	AT	OFT	OCT	ST	NT
45.—Whenever we have a problem, we are supposed to go to the same person for an answer.	AT	OFT	OCT	ST	NT
46.—No matter how special a pupil's or parent's problem appears to be, the person is treated the same way as anyone else.	AT	OFT	OCT	ST	NT
47.—Any decision I make has to have my superior's approval.	AT	OFT	OCT	ST	NT
48.—Red tape is often a problem in getting a job done in this school.	AT	OFT	OCT	ST	NT

The following six items (49-54) ask your **personal opinion** concerning an ideal or "good" school. All teachers and principals are asked to give their opinions.

There are five possible answers to each statement. They are:

Strongly Agree (SA)					Disagree (D)
Agree (A)		Undecided (U)			Strongly Disagree (SD)

For each statement circle the answer which indicates your attitude towards the statement.

49.—A good school will have well-defined differences between teachers and administrators insofar as authority and status are concerned.	SA	A	U	D	SD
50.—A good secondary school will have each of its staff members assigned to the teaching of one or two specialized subjects based upon their specialized training and experience; and a good elementary school will have each of its staff members assigned to teaching in a particular grade level (primary or intermediate) based upon their specialized training and experience.	SA	A	U	D	SD
51.—A good school will have a system of written rules for teachers designed to cover most situations.	SA	A	U	D	SD
52.—A good school will have a well-defined system of standard procedures for the guidance of staff members in their classroom teaching and other school work.	SA	A	U	D	SD
53.—A good school will operate on the basis that every person in the organization (administrators, teachers, pupils, and parents) is to receive exactly the same kind of treatment, and that no personal feelings should have an effect on working relationships between teachers, administrators, students and parents.	SA	A	U	D	SD
54.—A good school appoints and promotes staff members on the basis of professional competence.	SA	A	U	D	SD

76, 77

78, 79

80

DO NOT WRITE IN THIS SPACE. THIS SPACE IS RESERVED FOR
COMPUTER ANALYSIS.

Table 10

Estimated values of the parameters of the model, based on the data from the 1990-1991 season, for the different regions of the country.

(continued from Table 9)

Variable	Description	Estimated values	
		α	β
1	Constant		0.00
2	Constant		0.00
3	Constant	1.00	
4	Constant	1.00	
5	Constant	1.00	
6	Constant	1.00	
7	Constant	1.00	
8	Constant	1.00	
9	Constant	1.00	
10	Constant	1.00	
11	Constant	1.00	
12	Constant	1.00	
13	Constant	1.00	
14	Constant	1.00	
15	Constant	1.00	
16	Constant	1.00	
17	Constant	1.00	
18	Constant	1.00	
19	Constant	1.00	
20	Constant	1.00	
21	Constant	1.00	
22	Constant	1.00	
23	Constant	1.00	
24	Constant	1.00	
25	Constant	1.00	
26	Constant	1.00	
27	Constant	1.00	
28	Constant	1.00	
29	Constant	1.00	
30	Constant	1.00	
31	Constant	1.00	
32	Constant	1.00	
33	Constant	1.00	
34	Constant	1.00	
35	Constant	1.00	
36	Constant	1.00	
37	Constant	1.00	
38	Constant	1.00	
39	Constant	1.00	
40	Constant	1.00	
41	Constant	1.00	
42	Constant	1.00	
43	Constant	1.00	
44	Constant	1.00	
45	Constant	1.00	
46	Constant	1.00	
47	Constant	1.00	
48	Constant	1.00	
49	Constant	1.00	
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51	Constant	1.00	
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89	Constant	1.00	
90	Constant	1.00	
91	Constant	1.00	
92	Constant	1.00	
93	Constant	1.00	
94	Constant	1.00	
95	Constant	1.00	
96	Constant	1.00	
97	Constant	1.00	
98	Constant	1.00	
99	Constant	1.00	
100	Constant	1.00	

APPENDIX F

TABLE LIX

PRODUCT-MOMENT CORRELATIONS OF PRINCIPAL-SCHOOL SCORES AND
CHARACTERISTICS WITH THE PRINCIPAL'S ORGANIZATIONAL
STRUCTURE SCORE

(SCHOOLS = 42; PRINCIPALS = 42)

Variable Number	Description	Product-Moment Correlations	
		r	r_{pbi}
1 ^a	Sex		0.00
2 ^a	Marital Status		0.00
3	Age	0.20	
4	Years of Teaching Experience	0.16	
5	Years of Academic Preparation	-0.02	
6 ^a	Graduate Degree (Yes or No)		-0.12
7	Years of Administrative Experience	0.09	
8	Years in Present Position	-0.18	
9	No. of Teaching Periods Per Week	-0.38*	
10	Dogmatism Rating	0.13	
11	Major Medium of Communication	-0.27	
12	Principal's Communica- tion Rating	0.37**	
13	No. of Floors in the School	-0.05	

TABLE LIX (continued)

Variable Number	Description	Product-Moment Correlations	
		r	r_{pbi}
14	No. of Classrooms	0.19	
15	No. of Classrooms on Office Floor	0.12	
16	Number of Pupils	0.39*	
17	Number of Staff	0.08	
18	No. of Vice-Principals	0.04	
19	No. of Full-time Office Help	0.19	
20	No. of Part-time Office Help	0.03	
21	Socio-Economic Status of Area	-0.09	
22	School's OSQ Score	0.40***	
23	SOSS	0.15	
24	School's Congruency Score	0.36**	

^aThese are point-biserial correlations. The 0.05 criterion for significance was 0.304.

* $r_{.05}(df=40)$, two-tail $\geq$ 0.304

** $r_{.01}(df=40)$, one-tail $\geq$ 0.358

*** $r_{.005}(df=40)$, one-tail $\geq$ 0.393

TABLE LX
 PRODUCT-MOMENT CORRELATIONS OF SELECTED SCHOOL
 CHARACTERISTICS WITH THE "NUMBER OF
 FULL-TIME OFFICE HELP"
 (SCHOOLS = 42)

Variable Number	Description	r
1	No. of Floors in the School	-0.11
2	No. of Classrooms	0.42*
3	No. of Classrooms on Office Floor	-0.00
4	Number of Pupils	0.61*
5	Number of Staff	0.27
6	Number of Principal's Teaching Periods Per Week	-0.64*
7	No. of Part-time Office Help	-0.56*
8	Socio-Economic Status of Area	-0.22

* $r_{.01}(df=40)$, two-tail $\geq$ 0.393.

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